SMALL HOUSES FOR THE COMMUNITY

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WITH A FOREWORD BY

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FOREWORD

BY

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THE controversial aspects of recent housing schemes, whether financial or political, have received a fair share of attention, and it is now time that some adequate presentment should be made of the standard of actual building which has been attained. Few are more fitted to make it than the joint authors of this book : Mr. James, a highly gifted representative of our younger architects, to whose credit already stands no mean share of the best that has yet been accomplished in cottage design, and Mr. Yerbury, the Secretary of the Architectural Association, who has an intimate knowledge of the best work that is being done to-day, and is one of the best photographic exponents of architecture we possess.

This book does not include the bad, or even the average examples of post-war housing work in England ; far more valuable than that, it contains an adequate presentation of the standard of attainment reached. It is no mean standard ; it is one not altogether unworthy of the country which has inherited the richest and most varied traditions of beautiful cottage building of any country in the world : traditions the value of which was matched by the completeness with which they were ignored during the march of industrial enterprise in the nineteenth century.

Thirty or forty years ago a small group of people began to hark back, seeking first to pick up the lost threads of tradition, and then to stem the onward rush of congested ugliness, which threatened to obliterate what of ancient comeliness still remained in town or village, and to overwhelm in its flood of squalor what little love of traditional beauty still persisted. Slowly, but steadily, the spirit of the old work was recovered, and then applied to meet the needs of the new time ; not without lapses from the strait path slipping towards archaism on the one hand or *art nouveau* on the other. Point after point was gained against those who thought they were interested in the methods then practised, until it was established that no

:ase existed for congestion, for squalor, or for ugliness; that even greed, if ›nably enlightened, must turn against them!

In fact the whole vast nightmare of ugliness was found to arise from interests were merely shortsighted, economics that were not true, and a technique that as careless and incapable as it was soulless and devoid of taste.

This volume fittingly marks a success in that long struggle to establish w technique in the housing of the people. The housing schemes which it :rays, whether carried out by municipal, public utility or private bodies, have olished beyond doubt the practicability of the high standard of attainment wn. That standard no one who is responsible for housing work can afford to lect. Who falls below it will in future hardly escape reproach.

It is well that in this beautiful volume those alike who have to promote or to ign housing schemes can keep before them this record of worthy attainment, ful not only as a measure of their own success, but also as a very efficient aid vards its attainment. For in addition to the photographs of many completed ıemes in this country, and of a few well-chosen examples from other lands, the lume includes a concise statement of many of the chief points which must be pt in mind by the designer, and an example taken from good practice of the tire drawings, details, specifications, and other documents, through the medium which the design can be reliably converted into the actual building.

The housing problem exists because houses are too few and too bad; there only one solution—to build plenty of good houses. This book should help to cure that if there be plenty they shall also be good.

RAYMOND UNWIN.

HAMPSTEAD.

INTRODUCTION

THE problem of providing small houses for the community generally seems likely to be one that will remain with us for very many years to come, particularly with the increasing recognition of responsibility on the part of the Government, Municipalities, and large employers of labour. The serious shortage of such houses after the Great War not only made it impossible for the housing question to remain the concern of the few, but awakened the interest of the whole country, with the result that for the first time in history an attempt has been made during the past few years to deal with the problem on a large scale. That much of the work accomplished may be open to criticism is possible, but, on the other hand there are everywhere examples of work which show an enormous advance in housing, both from the point of view of design and of arrangement.

It is the intention of this book to place on record for the use of those to whom they may be of value some of the best examples of completed work, showing that it is possible to carry out housing schemes and build small houses without either outraging the æsthetic sense on the one hand, or ignoring the question of cost on the other.

The introductory chapters deal with the various problems which arise in connection with the general layout of schemes, the use of materials, and the actual design and planning of the small houses.

A complete specification and set of quantities for a group of small houses have been incorporated.

The illustrations include plans and specially taken photographs of various schemes, and types of small houses erected under various conditions, examples built in various materials, and also a number of details of doors, fireplaces, windows, etc., inexpensively made, but of satisfactory design.

A few examples from Holland, Denmark and Sweden, have been added. Those from the last-named country are especially interesting in that they show how timber may be used for modern house building with eminently satisfactory results.

INTRODUCTION

It is hoped that this collection of examples may be of service to those who may, either now or in the future, be engaged upon similar work, and also give satisfaction to those who for years past have laboured for reform in housing, and whose efforts and investigations have so lightened the task of the present-day Architect and Town Planner.

C. H. JAMES,
F. R. YERBURY.

LONDON.

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Chapter I

SURVEY OF THE PROBLEM

IT is not intended in this book to go deeply into the economic and social questions involved in the provision of houses for the less wealthy section of the nation. These considerations have been most ably dealt with by social reformers in book, pamphlet and press, particularly during the last few years, and as a result, very largely, of their labours we have gone far beyond the stage when the urgent need for the provision of numbers of small houses, in one way or another, was a subject for controversy.

The means for their provision is left to others to decide, for the immediate purpose of this book is to deal with the problems met with in their actual design and building, although it is, of course, realised that the economic aspect cannot be divorced from these problems. A sympathetic acquaintance with the social and financial difficulties surrounding the housing question is essential to any one attempting to contribute to its solution, and it is obviously impossible for the Architect to design satisfactory buildings without making a careful study of the outlook and habits of life of those who are to occupy them.

The most conservative estimate of the number of houses required in Great Britain immediately after the War was three hundred thousand, whilst some possibly more correctly suggested a figure as high as one million. It is certain that the normal requirements of the country, viz., between seventy-five and one hundred thousand new houses a year, are not being met, and have not been met for years past, so that as matters stand we are faced with an ever accumulating shortage. Again, that most vital problem, the clearance of slum areas, which every one agrees is a pressing need, remains practically untouched.

Whatever political or economic necessity may have excused the Rent Restriction Acts, the fact remains that these Acts put an end to the activities of the speculative builder, and made the " house to let " sign but a memory of the past. Thus, in a sense, those who were in occupation of houses were protected at the expense of those who were not. One section of the community was placated by removing the more unpleasant effects of the house shortage from

their lives, but it may be supposed that had the problem become general, public opinion would have promoted a speedier issue than has been the case.

The private builder of small houses to let has gone, perhaps for ever. His enterprise before the war provided practically the only source of supply for that section of the community generally known as " the working classes," except in a few instances where more enlightened employers of labour on a large scale built garden villages for their employees, such as Bournville, Earswick and Port Sunlight. In addition there were a certain number of Public Utility Societies which did fine work, but the mass of people were housed by the much-abused speculator.

Rents which the average tenant could or would pay were not sufficient to encourage the speculator to do more than provide a series of rooms covered by a roof, crowding as many as he could on to the land and producing ugly rows of houses decked out, more often than not, with unsightly trimmings which were supposed to be an attraction. He did not consider amenities, for his was a business whose object was to supply accommodation and nothing more, his main consideration being naturally to get as big a return for his outlay as possible, and the average tenant with limited means was prepared to accept, with a measure of thankfulness, what was offered him.

Even in the most prosperous pre-war days cottage building was not an attractive proposition, and it was difficult enough to produce economic schemes, but with the high cost of building to which we are now becoming quite accustomed the pre-war difficulties fade into insignificance. The fact must be faced that the economic rent of a present-day cottage is something more than the majority of working-class tenants can afford to pay. Presumably this is a position of affairs which no Government can afford to ignore, and we may reasonably look forward to an extended period of schemes for housing the people emanating from the Government of the day. Whether the time will ever again come when housing can be left to take its chance as in the old days is a matter for speculation, but if it does, we may be certain that the standard of housing attained since the war will have its effect, and will, let us hope, make it impossible for the nation to be satisfied with that which existed before the war. It must be remembered that for the first time in this country the problem of housing was, immediately after the war, attacked on national lines, and it is important to note that, also for the first time, architects were called in to design the every-day working-class house in large numbers. Of course, there is room for criticism in some cases, but no one can deny that as a whole the result has been to raise the general concept of working-class houses to a plane immeasurably higher, from the point of view of design and arrangement, than anything to which the present generation had been accustomed,

and it should be sufficient to convince the most sceptical that the services of an architect are just as essential to the proper design of a cottage as to that of a mansion or town hall.

What then is the architect's contribution? He must of course realise that he is dealing with a problem hedged with its own peculiar difficulties, which he must overcome and yet still produce designs which reveal the hand of the artist. "Minimum cost" is a phrase which will meet him at every turn, and this he cannot ignore without a confession of failure. Let him study the old villages and their cottages, and he will find that their charm results from their essential simplicity and lack of conscious design and obtrusive "features." To copy these slavishly would be folly. Modern conveniences such as sanitation, and improved ideas of light and air, would in any case make this impossible, but the essential qualities are the same to-day as in the days when these old cottages were built, viz., proportion, proper spacing of openings and, not least in importance, grouping.

Some of the schemes illustrated in this book are to an extent marred by the extreme "openness" of their development, and by the large number of houses built in pairs. Four cottages together is a sufficiently small unit of design, and even then such small groups should be linked up by walls and outbuildings to obtain a built-up appearance, otherwise it is difficult to avoid the spotty appearance of a large poultry farm, and easy to lose entirely any feeling of considered communal development. The single cottage is seldom a success unless standing well away from its neighbours, and the cost of land makes this an impossibility. Groups of four to sixteen are much more satisfactory in appearance, and although no doubt the sickening repetition of the Victorian terrace has caused an excusable revulsion of feeling, the possibility of incorporating some of the charm of the terrace of the eighteenth and early nineteenth century into modern housing should not be ignored. Moreover, we have long passed the time of "The Grump," of whom we are told that, "If your house was in a row or even half detached, your name from his acquaintance was immediately scratched."

From the prim little terraces of a hundred or more years ago, scattered about London and many of the provincial towns, there is yet much to learn. No individual house shouts for recognition, ornament is subdued, here and there a doorway is perhaps a little different from its neighbours, as possibly the ironwork of a balcony also, but every one is content to form part of a pleasant group, and to set us a model which we should do well to study.

Chapter II

SELECTION OF THE SITE

THE question as to whether existing large towns should be allowed to grow by adding suburbs to their boundaries, or whether self-contained satellite or dormitory towns should be built, hardly comes within the province of this book, though most reformers incline to the latter view. A really enlightened borough should realise when it has grown large enough for comfort and amenity. It will then take steps to ensure the preservation of a certain amount of open space before beginning to expand again by means of dormitory suburbs connected by fast trains or trams to the centre, or by means of satellite towns or "Garden Cities."

Starting off with a definite limit of area and population, the Garden City has the advantage of keeping the worker near his work, and thus saving large sums which would otherwise have to be spent in fares, and at the same time providing better homes, cheaper food, and far more time and opportunity for healthy outdoor recreation.

In any case, the first important consideration in connection with the provision of the houses of the future is the selecting of the place where they are to be built, and for this purpose careful thought and expert technical advice are needed. An unsuitable site may not only lead, as will be shown later, to great difficulties in development, but may also involve considerable and needless expenditure of money required for building purposes.

The Architect or Town Planner's task should begin before land is purchased, for he is best able to see the possibilities or drawbacks of a particular site. It should, for instance, be obvious to him that it is wiser in the end to pay more for gently sloping land easily drained and having a good subsoil than for a site that may have grave disadvantages of subsoil or contour.

The cost of the land is, therefore, not of such great moment as at first sight seems to be the case; the cost of road making and building is of far greater importance, for, with development costing on normal sites from four to six hundred pounds an acre, it may readily be seen that the development of an awkward site

would soon eat up any saving that may have been made in the purchase price, and the resulting plots would probably be less valuable.

Building on hilly sites is bound to be more than normally an expensive operation. It entails extra digging and banking, extra walling at the low side, and, in addition, either the erection of single houses or pairs, or awkward alterations of roofs and floor levels if larger groups are used.

In the selection of a site there are five main points to be considered :—

Firstly, the contours must be reasonable, that is to say, there must be little, if any, land that is incapable of development without recourse to roads of a gradient steeper than one in thirty, or, at the outside, one in twenty.

Secondly, the subsoil must be reasonably good. Marshy or peaty land should be avoided where possible; clay is not good, but is often inevitable, and makes a fair foundation if the concrete on which the houses are built is deep enough to be below the level of the fissures caused by very dry weather. The nature of the subsoil from a weight-bearing point of view can often be ascertained by observing whether or not existing buildings in the locality show signs of settlement. Trial holes should be made at various places on the site, and the geological survey will also give some indication of what may be expected. If suitable building sand or gravel is found, it will often pay for excavation, and on large schemes where brick earth is discovered brickmaking becomes a sound financial proposition.

Thirdly, the subject of sewage disposal is one that must be considered. When building near an existing town it should be ascertained whether the proposed site is at such a level as to make it possible to connect up with existing sewers; if in a rural area the lie of the land must be such as to make the provision of a small sewage disposal plant, in an inconspicuous position, a practical possibility.

Fourthly, sites in or near large manufacturing towns should be situated on the windward sides of factories, so that smoke will blow away from and not over the new houses.

Fifthly, accessibility from railway sidings must be considered, as the bulk of the material required will usually come by rail. However strongly it may be felt that local materials should be used, it is frequently less expensive to bring such things as bricks and tiles from a large manufactory at a distance than to use the products of local kilns, whose output is often too small to supply large scale building operations. This fact, however, does not excuse the use of tiles in

North Wales or of red bricks in the Cotswold Hills, a type of sheer vandalism, which has done much to mar the beauty of our countryside.

The Survey and Planning of the Site

The site having been chosen, the next important step to be taken is the making of an accurate survey. This should show the position of all good trees, hedges, ponds, existing buildings, streams and other natural features, and should be supplemented by a careful contour survey and photographs.

With this contoured plan before him, the architect can make the very best use of the land at the least possible expense, and it must be remembered that while a pretty geometrical pattern may be very pleasant from the air or on a drawing, it becomes ludicrous in actual practice unless the site be more or less flat and devoid of natural interest.

Every endeavour should be made to take advantage of lines of trees, hedges or brooks, and no possible amenity should be lost. Building plots should be rectangular in shape; awkward road junctions, which are wasteful of frontage and expensive to make, should be avoided.

The old method of developing a building site for residential purposes is only too well known. Long parallel roads of more or less equal, and far more than sufficient, width, were cut through at intervals of about 200 feet, this being just enough to give an inadequate garden to the houses on each road. The process was carried on *ad infinitum*, without the smallest regard for contours or other natural features, with the result that, in many instances, roads ran directly up very steep hills; in some towns such roads may be seen with a gradient as steep as one in ten.

These parallel roads were joined up at intervals with short cross roads, which were entirely useless so far as affording building plots was concerned, being merely flanked by the ends and gardens of the houses on the longer roads.

All roads were of the width required by the bye-laws, namely, 36 or 42 feet, 24 or 30 feet of which was carriageway and the remainder footpath. They had granite curb and channel, paved side walks and expensively constructed carriageways, and as means of access to residential property were unnecessarily wide and strong. Many roads of these dimensions may be seen in any provincial town used to serve two or three houses or a small *cul-de-sac*, with an abundance of grass and weeds showing up their extravagant and unnecessary width.

The old method of putting as many as forty or fifty houses to the acre was largely the outcome of circumstances connected with this method of developing

the land. Many expensive roads having been made on a given area, it was necessary for the landowner to reimburse himself by charging for the plots, not by area, but by the foot run of frontage. Hence, if the selling price or rent of a house was not to be unduly increased by the price of the land, the frontages of the houses had to be kept within as small a space as possible, often as little as 16 or even 12 feet being given to each house.

The bye-laws mentioned above were very largely responsible for this state of affairs. Framed fifty or more years ago, with a very laudable desire to prevent stuffy courts and back-to-back houses, they seem to have been interpreted without imagination or understanding. The thing that was, and still is, of the utmost importance, is that houses on opposite sides of a road should be spaced sufficiently far apart to enable them to get as much sunlight and air as possible, the actual width of the carriageway, provided it be adequate for its purpose, being of little importance.

The slightest foresight and intelligence exercised in the laying out of a building site will indicate with reasonable certainty the roads likely to have to take heavy traffic; the remainder may then be suitably constructed to serve their purpose simply as a means of access to dwellings, their traffic being limited to a few tradesmen's vans each day.

It has already been pointed out that the cost of road making is a more expensive item than the first cost of the land; it therefore follows that the less road it is necessary to make on a given site, the less the cost of the developed land will be, and, consequently, the larger the plot that can be given to each house for the same outlay of money. Before any road is made, it is thus essential to ascertain whether it will bring in sufficient revenue from the resulting frontage to pay for its cost.

An open system of development, such as would result from this method, inevitably leaves irregular plots of land of fair size totally undeveloped, and consequently appears uneconomical; but these spaces have very many uses, serving for tennis courts, children's playgrounds, communal gardens or allotments, being particularly suitable in the last-named instance because screened from the road and with ready access from the surrounding houses. Little difficulty will be experienced in letting these plots, and though the rents charged must be small, the expenses are almost negligible, no money having been expended in making road frontages to them.

After having laid out the plots in the residential roads, the largest of the spaces left over will possibly repay an access road and may be used as *culs-de-sac*

for ten to twenty houses, approached by a drive 10 or 12 feet in width. Such *culs-de-sac* afford quiet and pleasant dwelling-places, and are often in greater demand than those fronting on to the roads. A limit to their depth is, however, necessary, as traffic must not be encouraged on the small access road. Tradesmen will leave their vans at the end if they have not to walk too far, and can keep their horses or motors under observation.

If the length does not exceed 100 yards, a branch water main of the exact size required to feed the houses only need be provided, greater depth would entail a larger main for fire-prevention purposes.

Small roads for getting to the backs of houses were in most parts of the country a normal feature, but the need for these is, at present, dormant, as they have been superseded, for the time being at any rate, by open passageways through the blocks of houses themselves.

The Construction and Width of Roads

For general development purposes, leaving out arterial and main roads, 40 or 50 feet highways, of which the major part will consist of paths and grass margins, are all that will be necessary.

The carriageway, even on an important development road, never need be more than 24 feet wide, while 16 or 18 feet is much more usual. It must always be remembered that this can, if necessary, be widened at a future date by taking slices from the grass margins.

Carriageways of even less than this width have been tried, but the tendency on one of, say, 12 feet is for traffic to stay in the middle, thus making two ruts with a rough space between kicked up by the horses' hoofs. Even if turning-places are provided, they are not always used, it being so very easy to drive over the edge of a carriageway having no curb; thus it becomes impossible to keep the grass margins in good condition.

Curbs and channels are usually unnecessary, though the former should be put at corners to discourage the tendency of drivers to cut across. The alternative to a curb for this purpose is heavy oak posts or large stones, which are, however, dangerous on a dark night even if whitened.

The grass margin is now usually accepted as the right treatment for new residential roads in a position between the carriageway and the path, but it cannot be said that in the majority of instances it is very successful. Its care seems to be no one's business, and consequently it is seldom cut or tended, and if the

road or path is at all rough or stony it is very apt to develop into a footwa When the communal spirit is more developed, undoubtedly these grass margi will receive more care and attention, and in any case they are restful to the eye and are certainly better than the blue brick or granolithic paving whose pla they take. They have, if placed next to the carriageway, another function a buffer between it and the path, and so minimise the danger of thoughtless stepping off the path.

Roads which are of sufficient importance to have a carriageway 16 feet o more in width, normally have a 5 to 7 foot path on either side adjoining the boun dary of building plots. These may be of gravel, which is about the cheapes form, or, if it can be afforded, natural or artificial stone. Tar paving is often used but, while it makes a satisfactory path, it can hardly be said to be beautiful.

On a curved road a path may be put on the inside of the curve only, it being assumed that people even from the other side of the road will cross over and walk down the shortest side. *Culs-de-sac* and short connecting roads with little traffic require no footpath, the carriageway serving the double purpose. Where a grass margin separates carriageway and footpath, it is usual to join these up at intervals with short paths to minimise the wear on the grass.

Tree Planting

It has been the common practice to plant a line of trees on either side of a road quite without thought as to their effect. Avenues of trees are certainly very beautiful, but are only really effective on straight roads. On curved roads the best effects will be obtained either by a line of trees on the outside of the curve or by clumps of trees at intervals, while on a hill groups of trees will often give the best result.

Trees are usually planted in the grass margins, and, in the case of double avenues, on the edges of building plots as well, but there seems no reason why they should not be planted nearer to the houses so that the latter can be seen from the path through the spaces between the trees. There are few more beautiful things than an old brick building seen through a row of pollarded limes or graceful poplars.

Hedges and Front and Division Fences

Every endeavour should be made at the outset of a scheme to persuade tenants that fences or hedges, separating them from one another and from the

road, are not a necessity, and that if every front garden is open there is little tendency to trespass.

This may necessitate the society or authority owning the houses taking over the care of the front gardens, but the effect is worth the extra trouble involved. The value of simple grass plots as a link between houses cannot be exaggerated, and would often pull together a street of indifferently designed units in a way that nothing else could possibly do. It is enough to bring tears to the eyes of the designer of the houses to see what should be a simple lawn mutilated by constellations of flower beds. Small borders of simple English flowers against houses are very pleasant, and borders on either side of the pathway to the house may occasionally look well, though they are apt to have, in a minor degree, the effect of a cross fence.

The complete elimination of all hedges and fences brings us back almost to the ideal, namely, houses on to the street, as is usual in our old country towns, whose charm has to be recalled in the work of the future.

The absolute antithesis of this is the bye-law street of the speculative builder with its dwarf walls with blue Staffordshire coping and heavy, ugly, cast-iron railings enclosing a miserable plot of about 16 feet by 4 feet 6 inches of moss-grown mud, the cross divisions affording a dreary vista of spikes and ugly shapes as a fitting counterpart to the gables and bay windows above.

It is, however, necessary to know something about hedges, fences and gates, for it is unlikely that the practice of using these will be altogether dropped for some time to come. At the same time, it should be impressed upon tenants that front gardens are, in a sense, communal property, and it is certainly in their interests that there should be some sort of cohesion in treatment.

The cheapest division fence is undoubtedly a hedge, reinforced with wood or concrete posts about 3 feet high with two or three strands of wire. Similar posts with 1-inch galvanised iron tube at the top and wire mesh below form an effective protection to a growing hedge, and various large mesh wire fences are now made which are inexpensive and not unpleasant in appearance.

Hedges, when grown, make the least objectionable divisions, but it should, at least, be insisted that one variety only is used for all houses in the same road.

It is usual to link up houses and cut off the front gardens from the back, where spaces occur between blocks with simple trellis fencing to give privacy. There is no doubt, however, that a brick wall, either solid or honeycomb, is better

for this purpose, and this is probably more economical in the long run, as th life of a creosoted deal trellis is unlikely to exceed fifteen years.

Sheds and outbuildings, skilfully contrived, form helpful links in a frontag line, but they should be designed with the buildings they are to serve and no afterwards inserted haphazard. Many otherwise well-considered communa schemes of development have been marred, if not completely spoiled, by the outcrop of sheds of all kinds, which occurs soon after the houses become tenanted.

Chapter III

ECONOMICS

UNTIL the end of the last century, and even, with a few notable exceptions, until the beginning of the War, the provision of the type of house required by people whose means necessitated their paying a small weekly rent was left to the activities of the speculating builder. So far as can be seen, it had not come home to any but the most enlightened that the provision of small houses was in the least degree a social necessity. Building costs were such as permitted houses to be let at a rental that the ordinary manual worker was able to pay, and house property of this kind was considered a good investment by thrifty working men and small tradespeople. The actual builder, of course, was not as a rule able to hold the houses he had erected, even if he wished to do so, without seriously curbing his further activities.

His usual method of procedure was to obtain a strip of frontage of what he considered about the correct depth. He would arrive at the utmost possible number of houses capable of being placed thereon, and would then proceed to reproduce a plan which would just comply with the local bye-laws until the limits of the site or bankruptcy " permanently vitiated his future career."

A few houses were built to let by large industrial firms, by Local Authorities and County Councils, by Public Utility Societies, by landowners for estate servants, etc. These, however, provided an almost negligible percentage of the total. The first and greatest source of supply, the speculative builder, has now dropped completely out of the running, and although his return may be possible, it will probably not take place for some years.

In the meantime Local Authorities have built more than ever before, buoyed up by the fact that, under the " Housing of the Working Classes Act " of 1919, their liability ended with the amount that a penny rate would produce in their particular rating area, the country paying the rest of the loss. This Act has now been repealed, and another has taken its place under which the country at large will at least know the extent of its liability per house, and the Local Authority will have every encouragement to build as economically as possible.

Public Utility Societies, given reasonable legislation and help, may yet solve

the problem of building the small house for those who cannot afford to buy. It may be well, therefore, to give here a brief definition of such a body.

A Public Utility Society is in many ways similar to a Limited Company, but is required to be registered by the Registrar of Friendly Societies under the Industrial and Provident Societies Acts and to comply with certain Regulations made by the Treasury. The objects for which a society is formed are various, but always include, *inter alia*, power to deal in land of any description, and usually powers to provide and manage houses. Normally, although not necessarily, the tenants are also shareholders.

No person, except another society or a local authority, may hold more than £200 worth of shares. Under the Acts referred to, a society is required to restrict the dividend payable on share capital to 5 per cent.; but for the purposes of the Housing Act of 1919 this rate was raised to 6 per cent. As this was found to be insufficient, the regulation, so far as this limited class of society is concerned, was varied by the Housing Act, 1921, to "a rate not exceeding that prescribed by the Treasury." This latter restriction also applies in the case of those societies which desire to build houses under the Housing Act of 1923. A society is required to provide in its rules for this limitation of dividend.

The rest of the capital consists of loan stock issued subject to such terms as to repayment and payment of interest, etc., as may be determined from time to time by the committee of the society, or of loans secured on the property of the society.

Before the war these societies were able to borrow from the Public Works Loan Board up to two-thirds of the cost of a house of a reasonable size. The interest on this loan, to include repayment of capital in fifty years, was about $3\frac{1}{2}$ per cent. As these societies had thus only to borrow approximately one-third of the cost of the house at a rate of about 4 per cent., they were able to build more or less extensively and to pay their way while charging reasonable rents for their houses. Thus a cottage in the Hampstead Garden Suburb could be obtained quite as cheaply as infinitely inferior accommodation in Shadwell, while at Letchworth 4*s.* 6*d.* to 7*s.* 6*d.* (exclusive of rates) were normal rents.

Under the Housing Act of 1919, however, things became very different. The Government lent up to a maximum of 75 per cent. of the approved cost, but with considerable stipulations as to size and design, and the rate of interest, with repayment of capital in fifty years, varied from about $6\frac{1}{2}$ per cent. to $4\frac{3}{4}$ per cent., according to the market condition at he time of taking up. Little outside money was forthcoming, so that the tenants or the promoters had to provide the

bulk of the balance by investing in ordinary shares up to £200, any excess over this amount being taken up in Loan Stock. The necessity for the provision of this capital prevented the average labouring man from obtaining a house, with the result that these societies have recently been building almost entirely for the lower middle class, though on only slightly enlarged editions of the workers' type of plan.

Under the Act of 1923, a grant of a fixed sum per house per annum for a period of twenty years is provided, subject to certain conditions, and it is to be hoped that this will assist these societies to carry on the work which they were doing so effectually prior to the war, namely, to provide houses for manual workers in addition to those for the slightly better-off members of the community.

The time is now rapidly approaching when, with but slight assistance, carefully directed, from the public purse, it will be possible to build houses and to let them at a rental which, while being within reach of the worker's pocket, will also give a reasonable but not excessive return on the money invested.

The Rent Restriction Act, necessary though it seemed to be, has militated against house building to a great extent by preventing rents from rising approximately to the level of those which have to be asked for houses built since the war.

Chapter IV

SITE PLANNING

HOUSES of the type that are now being considered will, in the near future, need to be provided in very large numbers, so that, in addition to the planning of the house itself, the disposal of the various houses and community buildings on the site will need careful study. Nothing is more unsatisfactory than a large number of units of similar size dotted about without sufficient thought being given to positions for larger buildings and open spaces. However well they may be designed, a large number of small houses, without the relief afforded by buildings of a different nature, must be dull and uninteresting.

No group of more than fifty houses can be considered complete without at least a small institute with reading, meeting and recreation rooms; whilst larger schemes for complete villages, suburbs and towns will also require churches and schools, a picture theatre and shops, as well as a number of larger houses for doctors and others. A small hospital, or at least a First Aid centre, should be provided, and there seems no reason why inns, where food as well as drink may be obtained, should be excluded.

The institute as the common meeting ground of the community should, of course, occupy a central position. To place the churches satisfactorily, however, without offence to different denominations, is more difficult. Generally speaking they should occupy dominating positions, but to attempt to balance two churches of different sects does not seem to work out very well in practice. When more or less closely surrounded by buildings of a secular nature or by houses, churches usually look better, and their scale is likely to be more telling.

Except that schools should be in pleasant surroundings, their position is not of great importance, provided that they are within reasonable distance of the homes from which the scholars will come. They should not, of course, occupy island sites nor be nearly surrounded by expensive roads. The most general practice will be either to put them in large plots of back land that would normally be used as *culs-de-sac*, or on irregular plots difficult of ordinary development. In any case, they should not be put too near to houses whose occupants the shouting of the children is likely to disturb.

Shops should be placed where the maximum number of people will pass them; this is usually near the station or the routes of public vehicles. They have been found to be unsatisfactory in open squares, and, curiously enough, pay best when grouped together.

Picture theatres will find a place where an ordinary theatre would be a white elephant, and may be placed either in conjunction with shops or in the Square or *Place*, together with the Banks, Estate Office, Post Office and larger residences.

In Public Utility Society schemes, where the tenants in many cases possess small cars or motor-cycle combinations, a small block of lock-up garages with or without flats over them will be worth providing, both financially and as forming a break in the character of the buildings. Such provision would also help to restrain the outcrop of small wooden sheds that usually occurs.

Grounds for field games should, of course, be placed where the land is reasonably level, and for the selection of sites for these the same rules apply as those given for schools. For games requiring smaller areas, ample spaces will occur in any scheme of reasonably open development.

Road Junctions and Corners

In the foregoing considerations, the main object, namely, that of providing plots for houses, will not have been forgotten, but it may be well for a moment to dwell on the treatment of the junctions and corners of ordinary residential roads. Every possible endeavour should be made to see that roads cut into or across one another at right angles; otherwise endless difficulties, both with house plans and the division of plots, will occur.

There are many ways of treating a junction. The first, and probably the best, is to build it up completely with a specially designed block which produces an easy and natural corner. Such blocks are, however, difficult to design and somewhat more expensive to build than the normal rectangular type, and so have recently been almost impossible on financial grounds, being difficult to justify except from the æsthetic point of view. It should be added that the method outlined is most suitable when the two roads affected are of more or less equal importance.

Another, and perhaps the commonest, way of treating a corner, is with a wall joining the back angles of two pairs fronting normally their respective roads. This treatment is quite pleasant on level sites, but is apt to lead to serious complications on a corner where the fall is considerable. It interferes rather more than the last with the shape of the back garden plots.

A third way, and one which gives less trouble with the gardens, is simila to the last, but the houses are placed further apart, and, instead of being joine by a wall across the corner, are joined by one which continues the back or fron wall of each house, meeting in a summer-house or garden shed which may eithe be the property of one house or be divided between the two.

A fourth way, and one that should be reconsidered and not condemnec without trial, is the ordinary way in which the speculative builder treated a corner. That he usually did it abominably must be admitted, but it is capable of excellent results and is very suitable where the junction is of a main road with a *cul-de-sac* or other of secondary importance. It is the method of bringing the houses on the main road almost up to the junction, beginning again on the secondary road with a house at a reasonable distance away, and joining the two with a pleasant brick wall having a well-designed gate therein. This is the common practice in Holland, where bricks are cheap, and it is hoped will often be done again in England. It has the great advantage of giving rectangular gardens to all houses, though possibly they may be slightly curtailed in the case of the three or four nearest the corner.

Of course, this last method is almost impossible unless a really good and high wall or close fence of good design can be afforded at the side of the garden of the end house. Otherwise there is no privacy for any of the gardens and no screen for the inevitable untidiness round about the back door.

Another method, which, however, does not seem to be very satisfactory, is to put pairs or single houses diagonally across the corner.

An ingenious treatment has been suggested, namely, that of building up the angles completely with two or three storey flats, having no gardens whatever, but just a small court at the back, sufficient to comply with the bye-laws. As the upper flats would get no gardens in any case, the tenants of the ground floor flats could hardly grumble at getting none, and plenty of light and air would be obtained over the gardens of the ordinary houses on either side.

Many of the methods of treatment given apply equally to angles other than right angles ; obtuse angles are fairly easy to deal with, but their complementary acute angles are very difficult, serious complications arising owing to very limited gardens and the fact that the backs of houses will come too close together. If these troubles are avoided, considerable waste of valuable road frontage occurs.

Another drawback to irregular junctions is the increased difficulty and expense of building the corner completely up, owing to complicated cutting, especially in the roof, if the angles used are other than 45 degrees and 90 degrees.

For using up deep plots of land abutting a main road or for the treatment of *culs-de-sac*, quadrangles of houses are very pleasant. They can either be designed as separate groups arranged in the form of a square or oblong, or, if the land is sufficiently level, as one complete unit. If the latter and more pleasant method be adopted, it is probable that the houses will cost a little more, for it is almost impossible to reduce corner houses to the same cubic capacity as that of the ordinary houses on the straight, and their planning presents considerable difficulty. Nevertheless, they well repay the extra time and thought required. Quadrangles should on no account have separate front gardens, otherwise the whole effect will be spoiled.

Care should be taken to terminate vistas; nothing is more depressing than a street straggling on with no defined end. It is not necessary to have a gable or special feature for such purpose, but the picture should be completed in some way; if, however, a special feature is used, it must be on the axis.

In some Continental schemes the breaking up of street frontages for access to side roads is avoided by making a great archway over the junction through which the narrower secondary road goes. This affords pleasant pictures, and is probably the most satisfactory way possible, though it is bound to be more expensive than other forms of treatment.

The Size and Placing of Groups

In laying out a site for houses under the new methods of ten to twelve to the acre, parallel roads should be kept at least 300 feet apart centre to centre, while 340 feet is much better. Three hundred feet gives, with a 40-foot road, 15 feet front garden and a house 20 feet thick, a back garden depth of 95 feet or 190 feet between backs of houses, and a total plot of 130 feet by 33·5 feet at ten to the net acre or 130 feet by 28 feet at twelve to the net acre.

Three hundred and forty feet centre to centre gives, of course, more space between backs, but, if twelve to the acre is rigidly adhered to, reduces the available frontage to 24 feet per house or, at ten to the acre, 29 feet.

Now an average frontage of 30 feet will be found to be the minimum required for parlour houses facing either due North or due South, because in both these instances the two sitting-rooms should be on the sunny side, though often the end houses of a block may be of shorter frontage and different plan, as some light can be admitted at the sides. Great care must, however, be exercised in this case to prevent the windows looking directly into those of the next house.

Houses facing East and West may have their frontages considerably curtailed as one sitting-room may be at the front and one at the back, but, generally speaking the long frontage house is more satisfactory to live in, looks better, and is as cheap as the same accommodation provided on a deeper narrower plan, owing to the saving in roof, height and gable wall, which counterbalances the increased wall area of the longer frontage type.

Almost all Public Utility Society schemes, with the class of tenant now being attracted to them, will require long frontage houses, as otherwise it is well nigh impossible to give access from kitchen to front door without going through the living-room, and such access is nearly always asked for by prospective tenants.

Too often in the past have blocks of four or six houses of exactly similar type been built, for the reason, one supposes, that it is slightly more difficult to work in an end house of a different type, but if this can be done, it will be found to add considerably to the interest of the elevation as well as being the logical solution of the problem, the end house having three external walls for windows and entrance door.

The general adoption of a wide frontage type of house will be found to close up frontages and to produce built-up street effects impossible with narrow-fronted houses unless the latter are given inordinately long and narrow back gardens, assuming, of course, that one is not exceeding the maximum of twelve houses to the acre.

As to size of groups, it may be well to run through the advantages and disadvantages of each type.

Single houses are to be avoided, except in very exceptional circumstances. They cost more than the same accommodation provided in one of a pair or more. They usually look very small and are too tall for their width or depth, and difficult to treat symmetrically unless the front door is central in the front or end. If exceptional circumstances arise demanding their use, as on very steep roads or sharp corners, care must be taken to tie them on to their neighbours by connecting walls or sheds.

Pairs suffer from some of the disadvantages of single houses, namely, they are still small to stand alone as units, unless they are of the " two sitting-room, four bedroom " type, and the spaces between them make gaps which are unpleasant unless treated as before suggested. They must usually be used, however, on curved roads, and on roads having a gradient steeper than one in twenty. Next to single houses, pairs are most popular with tenants, as they think that thereby they gain additional privacy. It is true that they only have one party

wall, but the " back " door and the untidiness surrounding it being usually at the side is more on view from the road and from the adjoining house than if it were at the back.

Blocks of four make a unit of reasonable size, and lend themselves to good architectural treatment. Normally they are slightly cheaper than pairs, but the saving of one external wall is almost nullified by the extra cost of the 4-foot passage-way that is usually provided for access to the backs of the middle houses. The space over this, however, adds considerably to the bedroom floor area and often makes it possible to provide four bedrooms to one or both of the inner houses, or in any case, larger bedrooms than could otherwise be obtained.

Blocks of six, even of the most simple design without a break in the front, can look charming and give a feeling of restfulness seldom obtained in housing schemes.

Beyond this number we should speak of " terraces " or " quadrangles," of which far too few have been done recently. They may be found at the Duchy of Cornwall estate, but on very few other modern schemes, but England is full of suggestions for any one who cares to look for them.

Lastly, if it should be necessary to make many repeats of one type, that type must be of the simplest description; the repetition of a gable or bay window several times in a street is most restless. Gables at right angles to the street should be avoided except as closing features at ends. A much more restful effect is produced if the bulk of the lines run parallel to the frontage.

Chapter V

DESIGN AND MATERIALS

THE subject of the actual design of the houses is one on which it is unsafe to generalise. A type of house suitable for one locality may be totally out of place in another, but local tradition and definite requirements of cost and accommodation will form a solid basis on which to work.

The chief point to be remembered is that individuality must give place to unity. The merely picturesque, possibly permissible in a single house, becomes an incoherent jumble if often repeated.

There is one type of house which never seems to be out of place, and that is the simple and unaffected "Georgian" cottage, consisting of a doorway in the centre with a window on either side and three windows above. It may be seen looking equally at home in Cornwall, Yorkshire, the Cotswold Hills or the Home Counties. In fact, such a cottage might be standardised and used with excellent results in any part of the British Isles, provided only that suitable materials are used for walls and roof.

It should not be inferred from the above remarks that this is the only good type, but merely that it is the type most suitable to every locality and under all conditions.

Design has been described as "The arrangement of the details which are to go to make the whole, not only with regard to their artistic completeness, but also with regard to their appropriateness and general utility in the position which they are designed to occupy and the materials from which they are to be constructed." The same authority adds a remark, the truth of which is too seldom realised, namely, that "Design does not necessarily mean originality or newness; far more frequently it is merely the development of old ideas to suit new conditions."

It cannot, therefore, be said that a certain type of roof or wall, door or window is bad or good, but that it is inappropriate or the reverse. There is, however, one thing, abstract and difficult of definition, but which is inherent in

all good buildings, and that is *character*, which may be described as the impress left by the knowledge, skill and especially the care of the designer.

Bearing these points in mind, it will be possible to discuss from an unbiased standpoint the various kinds of walling, and roofing materials, of windows and doors, and of eaves and chimney stacks.

Walling Materials

Most people given the choice would prefer to live in houses built of stone. The reasons are probably that it is so solid and everlasting in appearance, and that, generally speaking, it is pleasant in colour and texture. It is, however, expensive, even when the quarries are close at hand and the stone can be had for the getting. The labour of working, laying and fitting blocks or pieces of varying size, makes the work slow and the cost prohibitive where economy is one of the prime factors. Stone walls, too, must be 18 inches thick as a minimum, and this entails extra roof, possibly more foundation, and, if the stone is very porous, a lining of brick will be needed in addition.

Stone walls may either be left in their natural state or may be covered with lime wash or distemper. There are few pleasanter wall surfaces than rubble stone which has had a few coats of colour wash.

The commonest walling material and that which gives the most general satisfaction, when cost, speed of erection and general utility are considered, is brick. Bricks vary a great deal in size, colour and texture in various parts of the kingdom. In London and the Home Counties, they are $2\frac{5}{8}$ inches thick, and the bulk of them are of excellent appearance and have good weathering qualities. In the Midlands, West and North, however, the bricks are usually 3 inches thick, which is unpleasantly large, and, generally speaking, they are either of an ugly red colour, or are what is known as "brindled," that is to say, semi-vitrified.

Most of those from the South Country are of a porous nature, and so will require to be built with a cavity to stop water penetrating to the inside of the building. This is more expensive than solid walling and probably less strong, but is likely to bear all the strain put upon it in an ordinary domestic building.

A wall of brick, where colour, texture and size are right, is a continual pleasure, and improves with age and weather if built in good mortar and properly pointed.

Where facings of good appearance are unobtainable and brick walls are still desired, there are two alternatives—to cover them with cement rendering or with colour wash.

Cement rendering if left to the ordinary plasterer, is likely to be finished with a perfectly smooth, hard and even surface. To avoid this, it should be specified to be finished with a wooden float, with which tool a pleasant uneven texture is obtained, or else it may be pricked over or scratched with a hard brush. Interesting patterns may be obtained by the scratching if the plasterer enters into the spirit of the work.

Rough cast is the application of a third coat to the above. This is done by flicking sand and cement on to the wall by means of a bunch of twigs or a brush. Horrible results are often obtained by using gravel in lieu of sand.

Both cement rendering and rough cast will need, for the sake of appearance, no less than to assist in making them waterproof, two coats of colour wash. This may be either lime wash, an admixture of Russian tallow and the necessary pigment or a proprietary distemper (external variety). The great advantage of the last-named, is that the desired colour can be seen beforehand. Results vastly different from those anticipated are frequently obtained with lime wash and powder colour.

Concrete blocks have been used with great success in many places. They are especially useful where bricks are either almost unobtainable or in stone districts, where their use would be out of harmony with the surroundings. At the present time and in most places, they are quite as expensive as brick, and often give trouble with condensation on the inner side of the wall. It is usually necessary to colour wash externally, as in the case of rendering or rough cast, and for similar reasons.

A great engineering firm in the north of England, seeking to overcome the shortage of bricks and bricklayers during and immediately after the war, evolved a system of concrete and steel construction which served a very useful purpose. Now that other materials and more workmen are available, however, their system will probably die a natural death. The different coefficients of expansion of steel and concrete cause cracks to appear in the external walls which is the greatest drawback to this system, while it is more expensive than ordinary methods at the present time.

Weather boarding on wooden framing is not now generally approved by Local Authorities. When painted white its appearance is all that can be desired, but the expense of proper upkeep is considerable.

Sawn elm weather boarding left without treatment of any kind looks well, but warps and twists so badly that it must have a weatherproof wall behind. Two thicknesses of clinker concrete held together with galvanised iron ties serve

this purpose, as well as affording a backing that can be nailed to without the addition of wooden battens. Weather boarding with the wany edges left on seems unjustifiable affectation.

Mass concrete as a walling material is not very satisfactory. Other systems, such as cob, pise and chalk have been adequately dealt with elsewhere, and while they are no doubt very satisfactory under certain circumstances and for isolated cottages and farm buildings, they do not appear to offer a serious contribution to the solution of the problem with which this book is concerned.

Roofing Materials

Of equal importance with the wall of a building is undoubtedly its roof, for upon these two falls the bulk of the work of keeping the inmates dry and warm. One of the most beautiful materials for this purpose is the stone slate used in the Cotswolds and parts of Northamptonshire. It does not, however, greatly affect the present problem, as the cost is quite prohibitive, but there is no adequate substitute for roofing in these neighbourhoods.

Stone slates should be fixed with oak pins and laid in diminishing course from eaves to ridge.

Plain tiles are the most generally useful material for roofs whose pitch exceeds 45 degrees. They are waterproof at or above that pitch, laid to a 3-inch lap, except in very exposed positions, without the assistance of torching or of felt. They look right in most neighbourhoods, especially all round London. Next to stone slates and the more beautiful varieties of Cornish and Welsh slate, they are the most expensive form of roof if a good quality tile is used. Machine-made cheap tiles are ugly and unsatisfactory in every way.

Pantiles with their wavy surface and vertical channels are most satisfactory from the point of view of design, they cost less when laid than plain tiles, but are not waterproof in themselves, and need either bedding and pointing in cement mortar or a lining of impervious felt beneath. In Belgium and Holland they appear to be used on steep pitches of 50 degrees or more without any pointing or felt. However, without interrogating the inhabitants, it is difficult to find out whether or not the rain or snow gets through.

There are now on the market many makes of more waterproof tiles of somewhat similar appearance, albeit not nearly so beautiful. Some have special interlocking qualities which make their use possible on pitches as flat as 30 degrees, and where price is a prime factor they are one of the best forms of roof obtainable. Neither the surface nor the colour is all that could be desired, but they are certainly

superior in appearance to cheap machine-made plain tiles or to the ordinary variety of blue or purple slate, with which materials they are comparable in price.

It is unfortunate that an otherwise good roofing material, such as slate undoubtedly is, has been spoiled by the discovery of mechanical means of splitting and dressing, as it is chiefly owing to its smooth texture and thin appearance that it has come to be so despised. In Wales and Cornwall this roofing material is inevitable; it therefore only remains to be seen that a thicker, rougher type of slate is used. Blue slate roofs with red brick walls make one of the worst possible colour combinations, and should be avoided at whatever cost, but these slates may be used successfully with London stocks or gaults, or, of course, with colour-washed walls of any material. Isolated attempts made from time to time to introduce flat roofs, either of concrete or joists and boards covered with a water-proof material, seem to have been abortive.

The appearance and character of a building can be more altered by the shape and pitch of its roof than by any other means. A house designed for a steep roof cannot suddenly be altered to take one of a flat pitch, but from the outset the designer must bear in mind the roofing material and the pitch desired. It will be obvious that a cottage 24 feet thick cannot have a roof of 45 degrees or over without considerable waste of space therein and an appearance of top-heaviness, unless the roof be brought down at least to first floor window-cill level and dormers introduced. Similarly, a roof of 30 degrees or over on a span of 18 to 20 feet will be insignificant, and, indeed, almost invisible to any one standing in its vicinity. In view of this, in places where plain tiles are the natural roofing materials, houses of small span and long frontage will be required, and only where the reverse is the case can flatter roofs of slate or interlocking tile be introduced with success.

Roofs of the Marsard type may be very successful, if the subtle relation of the two slopes is understood; they cannot, however, be said to be as cheap as the more usual variety.

Much cutting in roofs is undesirable, especially where pantiles or the like are used, as no special hips and valleys made to bond are obtainable as is the case with plain tiles. It is, perhaps, unnecessary to add that red hips and ridges are unsuitable for use with slate roofs.

External Doors and Doorways

The front doorway of the average inexpensive cottage is almost the only feature on which it is possible to use ornament, so that however many economies

may have to be effected elsewhere, the expenditure of an extra pound or two on this item should not be impossible. It is only by this means that the monotony of really cheap houses, however carefully designed, can be relieved.

Where a fanlight may usefully be inserted, it offers much scope for economical decoration, and in any case, a well-designed architrave frieze and cornice may be used. Composition enrichments are not expensive, and are easy to obtain and to apply, while simple pilasters, either plain or fluted, can often be used.

The door itself may have fielded or moulded panels, and if these are kept small so that specially picked timber has not, of necessity, to be used, the cost will not be excessive. " Half-glass " doors are frequently necessary, but should be avoided if at all possible. When used they look better either with the glass occupying at least three-quarters, if not the whole, of the available panel space, or else confined to the small upper panel or panels of the door.

Artificial stone doorways ought not to be outside the realms of possibility, if they can be ordered in lots of six or more at a time.

Simple brass furniture and paint of good colour will always amply repay their exceedingly small cost.

Windows

Next to the roof, the windows probably have the greatest effect in determining the ultimate appearance of a small house. It is wise, therefore, to expend some time and thought upon them, not only in order to decide which type of window is most appropriate, but also to arrive at a happy shape and size for the panes, and a good proportion of frame and bar to glass and of windows one to another.

The double hung sash window seems to be experiencing a great revival of popularity at the present time, and not without reason, for it undoubtedly has many merits. The chief of these are the ease with which a little ventilation can be obtained, the simplicity of cleaning and the good appearance. Its drawbacks are that sash cords break, sashes shrink and rattle in the wind, and the cost may be anything up to 25 per cent. more than ordinary wooden casements.

The last-named are thought to be more picturesque and were made popular by early housing reformers, for the probable reason that the sash window was the one in general use by the speculating builder of that time. The position is now reversed.

Wooden casements, like sashes, have a tendency to shrink, and with more noticeable results, for a serious shrinkage will allow rain and wind to penetrate.

Ventilation is difficult in wet or stormy weather unless opening top lights are provided, and bedroom curtains are liable to be sucked outside and deposited in the eaves gutter, often a far from clean place.

Steel casements are very costly if of special size and when used in conjunction with wooden frames. They are, however, made in standard sizes and with steel frames, hinges, stays and fasteners complete, when they become comparable in price with those made of wood. It should be said that with all types of casement window special hinges should be used to enable the outside to be cleaned from inside the room.

There may be occasions when leaded glazing is appropriate, but ordinarily its use does not appear to be justified.

Yorkshire sliding sashes are now seldom used, but they are the cheapest of all forms of window.

Setting windows near the face of the wall obviates the use of any cill other than that which forms part of the window itself.

Dormer windows should be so arranged that the eaves gutter will pass across or just below them; this saves additional down pipes and incidentally improves the appearance. They should have adequate angle posts to stop the studding and plaster on the cheeks and to avoid any appearance of meanness.

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Little things tell very much in simple houses, and nothing can be allowed to go unconsidered. The greatest care must be exercised in the design and placing of chimney stacks, which should always be simple and with projections, if any, not exceeding three-quarters of an inch. The flatter the pitch of the roof the shorter the chimneys may be. Horizontal lines of window and door heads should be carefully followed out round a building. Eaves should be proportionate in projection to the pitch of the roof, the steeper the pitch the narrower the soffit. Fascia boards must be stopped by kneelers or else returned at ends, and should not exceed 4 inches in depth unless definitely required to give the effect of a cornice, when the assistance of a bed mould will also be required.

The design of small houses is work that requires much care and patience, but as nearly one-half of the community appears to need rehousing it is to be hoped that this work will be taken in hand by many people of imagination and sympathy, who care no less for the outside appearance than for the inside amenities of the houses upon which they may be engaged.

Chapter VI

CONSTRUCTION AND INTERNAL ARRANGEMENT AND FINISH

IT is proposed in this chapter briefly to outline the usual forms of construction and finish employed in the type of inexpensive building now under consideration. Many of the economies, made necessary by high costs, lack of materials and the shortage of men in some trades, have been proved and found quite satisfactory, and those which cannot be so described have been omitted.

Concrete under walls 9 inches thick and about three times the width of the wall itself will suffice on ordinary soils, and the top of this foundation concrete should be at least a foot below ground. Brick footings are now usually omitted, and the spread of concrete above described renders their use unnecessary.

Roll bituminous felt is the damp course commonly used in and around London, and is probably the most inexpensive. Tar pitch and sand boiled together and spread on the wall whilst hot, is often specified in the West and North. The damp course should be below the joists in wooden floors, but where the flooring material is laid direct on the surface concrete it should be level with the floor itself.

The construction of external walls depends on the material of which they are built, and was discussed in the previous chapter. Party walls may be economically built semi-hollow, *i.e.*, with bricks laid on edge, the stretchers forming the outer skins and the headers acting as ties. Above the bedroom ceiling line $4\frac{1}{2}$-inch party walls are generally approved.

Wall plates may be dispensed with both to ground and first-floor joists, the ends of the joists being thoroughly coated with tar or other wood preservative and built direct into the wall.

Half-brick walls form the bulk of the ground floor partitions, and are carried up to the first-floor ceiling where possible to give support to the roof and stability to the whole structure.

First-floor partitions of 2 to 3-inch coke breeze slabs have come into general use, and these should be supported on two common joists, spiked or bolted together if running in the same direction as the joists, but are less likely to crack and settle if running at right angles to them. Care must be taken not to overload floors, and, in doubtful cases, wooden partitions should be substituted, especially if the partition is required to afford support to the roof timbers. Sides of cupboards are also most inexpensively constructed with coke breeze blocks. Fixing bricks of similar composition should be built in where required in preference to wood slips.

If no floor spans exceed 11 feet, 7-inch by 2-inch joists will suffice. This should be borne in mind when planning, as that size of timber is the least expensive per cube foot and one of the most easily obtainable.

Ceiling joists and rafters are normally spaced at 15-inch centres, but this may be increased up to 20 inches with tiles of large size, such as the " Double Roman " and corrugated variety. Ordinarily it will be impossible to afford any other cover for the roof than the tiles or slates themselves, therefore the pitch is dictated by the weatherproof qualities of the particular material used.

The majority of bye-laws insist on air bricks in all bedrooms without fire-places or with gas fires and in all W.C.'s. An air brick in larders and unventilated cupboards or coal places is also an advantage.

It is usual to give access to roof spaces, and to floor a certain portion for the storage of boxes, which otherwise have no home in the economically planned cottage, and this space may be lighted by means of three or four glass tiles.

It is possible to ventilate gas fires without a chimney stack being built, by taking a 9-inch by 3-inch flue to an air brick under the eaves or into the roof space.

As a covering for door heads and dormer windows, lead is preferable to any other material, even if the minimum weight of 4 lb. is used; heavier weights are, needless to say, better.

Beam filling and wrot rafter feet become unnecessary if soffits of eaves are boarded or plastered, and this has now become the general practice.

Internal Arrangement, Finish and Fittings

The fitting and finish of the living-room depends almost entirely on locality and the probable type of tenant. Some still prefer to have a small cooking-range and use the scullery for washing and for washing up; especially is this the case in the north of England. In the south it is, however, more usual to put a grate which may be used as an auxiliary to the gas cooker in the scullery or to put in

an ordinary sitting-room grate and definitely to confine all cooking operations to the scullery. Whether used for this purpose or not, the living-room is the real centre of the house, it should therefore be given most careful thought. There should be no doorways adjacent to the fireplace, neither must doors be so placed as to make a passage of the room. The dresser will find a place here, unless all cooking is done in the scullery, and in any case a cupboard should, if possible, be contrived. South or East and West is the best aspect.

The scullery may have a cement or, if it can be afforded, a tile floor, and will need to be fitted with a wash-copper to burn coal or gas, a sink with, if possible, two draining-boards, and often a gas cooker. A few white glazed tiles around sink and copper and for the window cill will be much appreciated. The walls will normally be left unplastered.

As much shelf as possible should be provided at an accessible height, and when this room is intended to be used for cooking, a place should also be found for a dresser or cupboard.

The larder is best entered from the scullery and not from the living-room, as, if adequately ventilated and on the north side of the house, it is likely to be very cold and draughty.

Whenever possible the W.C. should either be upstairs or entered from the hall or staircase.

The coal house should be accessible under cover, and its floor must always be down a step. When entered directly from the scullery, a hatch in the external wall is an advantage.

The parlour, if provided, will be used by some tenants, merely as the temple of the household gods, but others are quite likely to turn it into a dining-room. It is, therefore, necessary to know beforehand to what use it is going to be put and to make arrangements accordingly. It should get sun at some time during the day, and a western aspect is considered the most desirable. Many tenants will, however, prefer to face the road whether sun is able to enter or not. A gas fire in this room is very convenient.

It is generally agreed that the staircase should start from the entrance hall, and not from a room, as, in the latter case, it is likely to act as a flue up which the warm air is taken every time the door is opened.

If, as is frequently desired, the scullery, as well as the two sitting-rooms, has to be accessible from the hall, many of the plans usually used in housing schemes

become inapplicable, and the hall itself, and, in fact, the whole house, will need to be slightly larger.

Thirteen stairs to rise the usual 8 feet 9 inches are as steep as should be allowed, and if fourteen can be contrived it will be a great gain. The minimum width desirable is 3 feet, and winders, if they cannot be avoided altogether, should be near the bottom.

One of the bedrooms should be of an area of at least 150 feet super. This is considered to be adequate for two adults and a child. Exigencies of space will decide the size of the other rooms, but none should be less than 70 feet super. Wherever possible all these rooms should have cupboards 2 feet deep and stretching from floor to ceiling.

A bathroom on the first floor is much preferable where circumstances allow. When this is impossible, it may either be entered from the hall or the scullery. In the latter case it may conveniently be used as a washhouse. A bathroom on the ground floor effects considerable saving, as hot water may then be taken direct from the copper with one short length of pipe, the copper being raised to allow of this.

All the mouldings and joinery throughout should be of the simplest possible character. Doors divided by a lock rail into two panels, and with the panels themselves in ply wood are as inexpensive as any except the ledged and braced kind which are not popular with tenants. The architrave and picture rail may very well be 1½ inches by ½ inch square or splayed, and the skirting of the same thickness, and 3 to 4 inches deep.

Flooring tiles make excellent window " boards " and take a good wax polish. They are obtainable in buff, black and other shades, as well as the more usual red. They may also be used for fireplace surrounds.

It is often necessary, for economy's sake, to treat joinery with stain, though usually, the quality of the timber is such as to render this process far from satisfactory in appearance, but it is much more lasting than paint and marks less easily, and for these reasons is often preferred.

External woodwork should, however, always be painted, and it is well for this purpose to specify a well-known brand and to see that it is used. Cheap paint effects no real saving, whilst stain used externally imparts a dingy look to a house from the first. From the point of view of general effect, no colour is so suitable for windows as cream or white, but as previously stated, any good bright colour that does not clash with the walling materials may be used for doors.

Internal door furniture of wood or dull black iron is least expensive, and is now obtainable in reasonably good and simple designs.

* * * * *

Every endeavour should be made to reduce upkeep to the minimum, and economies made at the expense of reasonable permanence are not justifiable. Nothing that does not partake of this quality can ever be considered a work of art, and it ought to be possible so to describe every group of cottages, however simple.

PLATES AND PLANS

PLATE I.

PLATE II



PLATE III.



Dover Municipal Scheme.

PLATE IV.

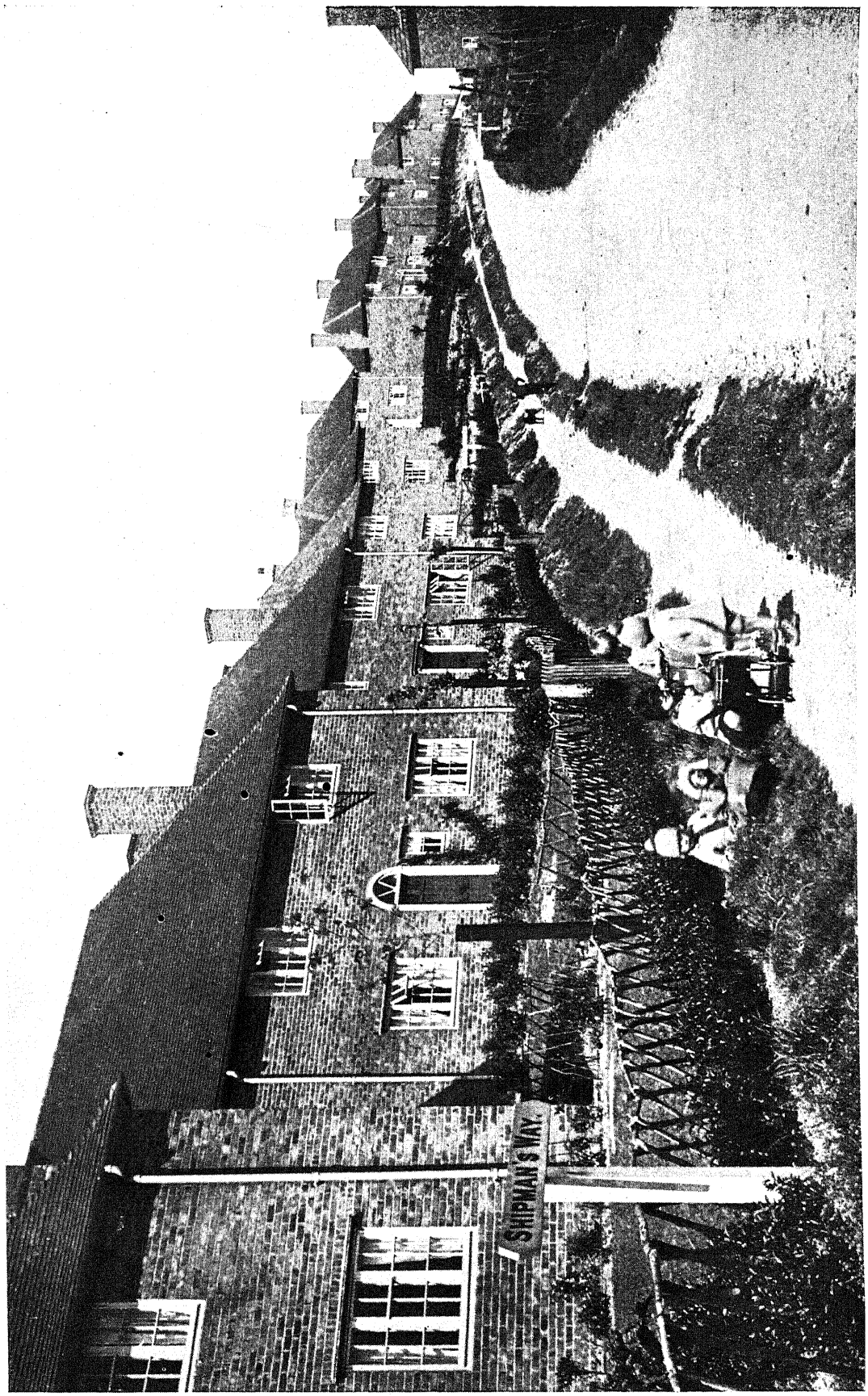


PLATE V.



PLATE VI.



Dover Municipal Scheme.

ADSHEAD and RAMSEY and PERCY B. HOUFTON, Associated Architects.



The Durlocks, Folkestone, for Sir Philip Sassoon, Bart., M.P.
A scheme in which great difficulties of contour have been overcome with eminently satisfactory results.

EWART G. CULPIN and R. S. BOWERS, Architects.

PLATE VIII.

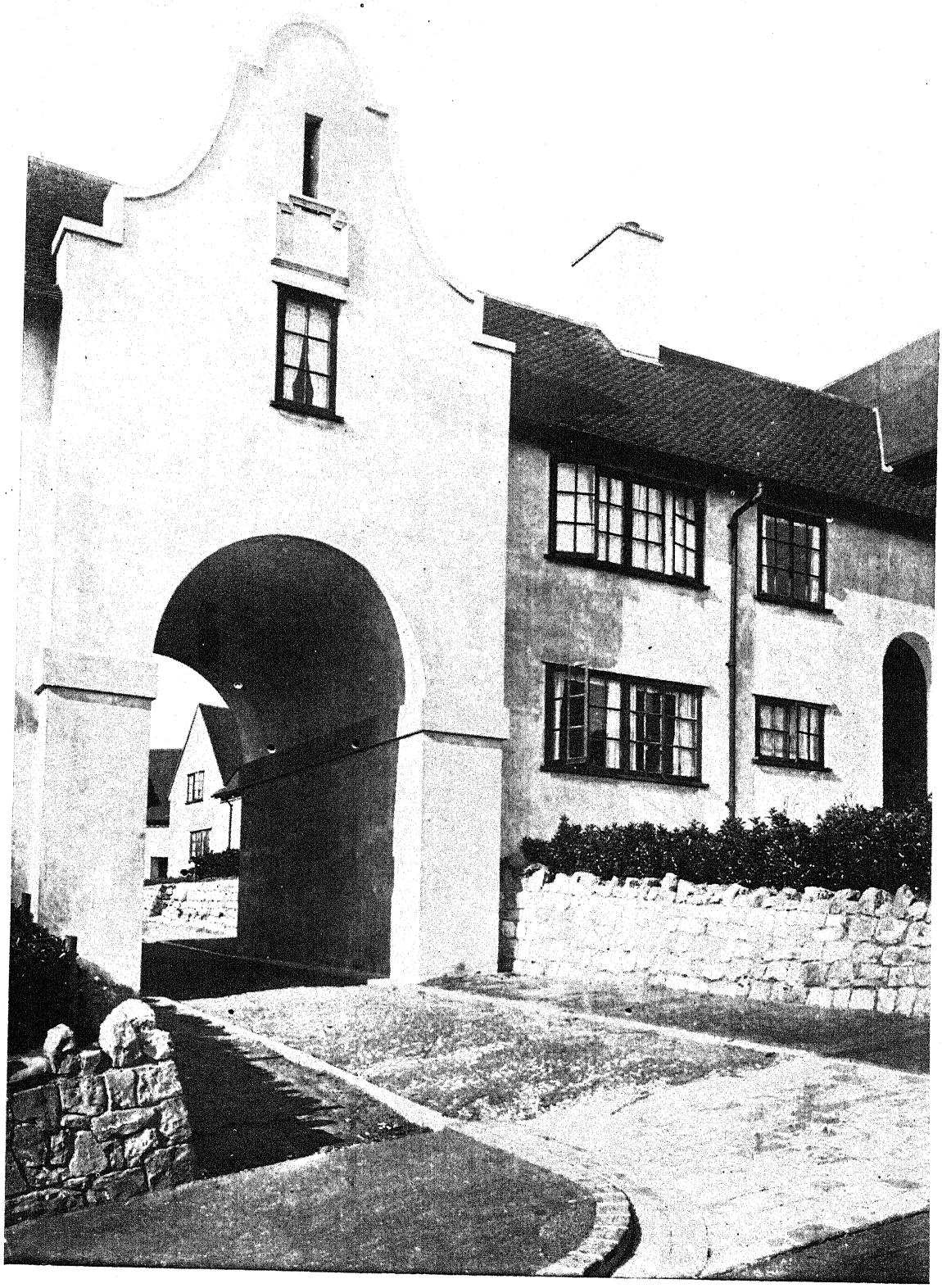


PLATE IX.



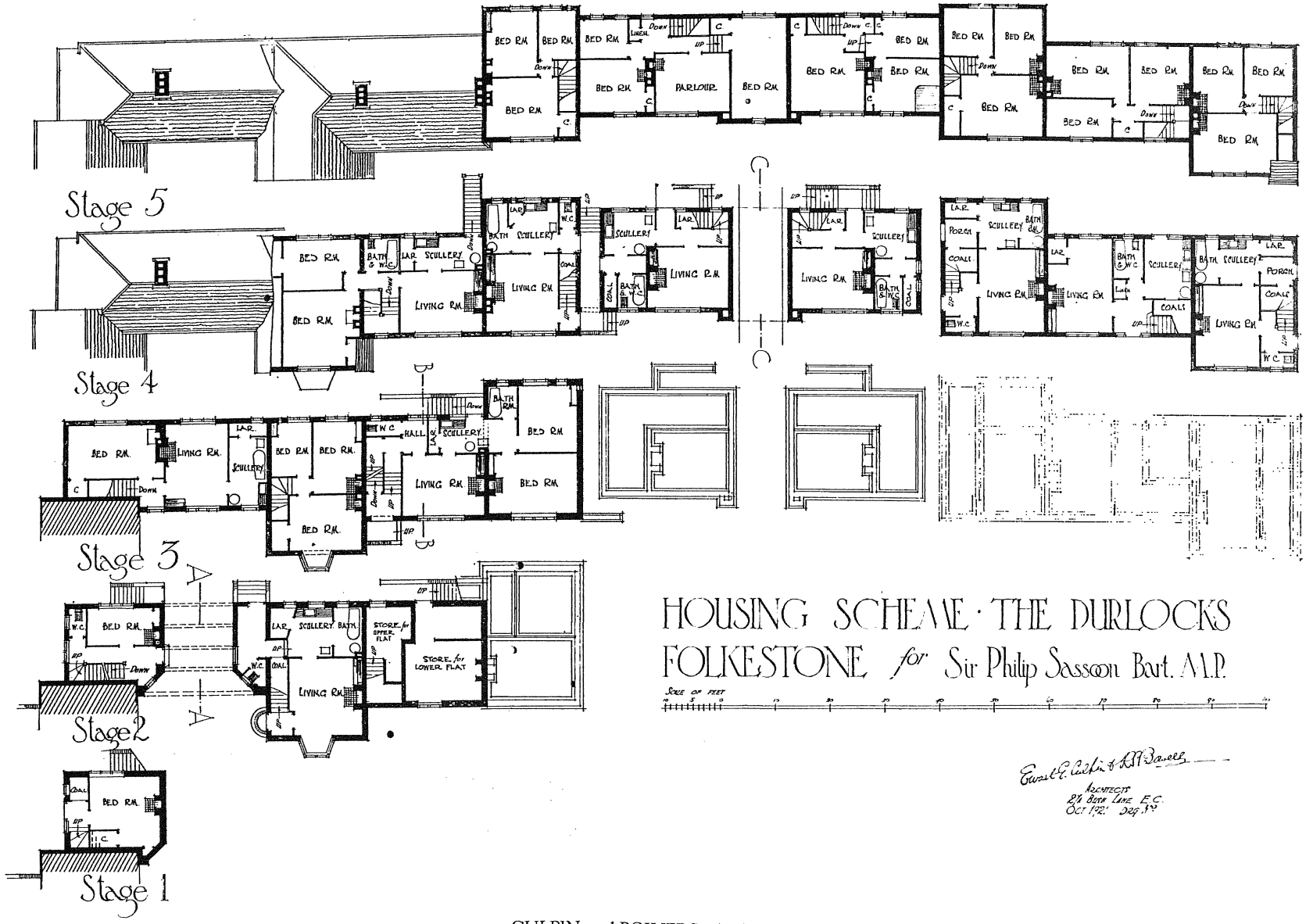
The Durlocks, Folkestone, for Sir Philip Sassoon, Bart., M.P.

EWART G. CULPIN and R. S. BOWERS, Architects.



The Durlocks, Folkestone, for Sir Philip Sassoon, Bart., M.P.
Entrance to Inner Quadrangle.

EWART G. CULPIN and R. S. BOWERS, Architects.



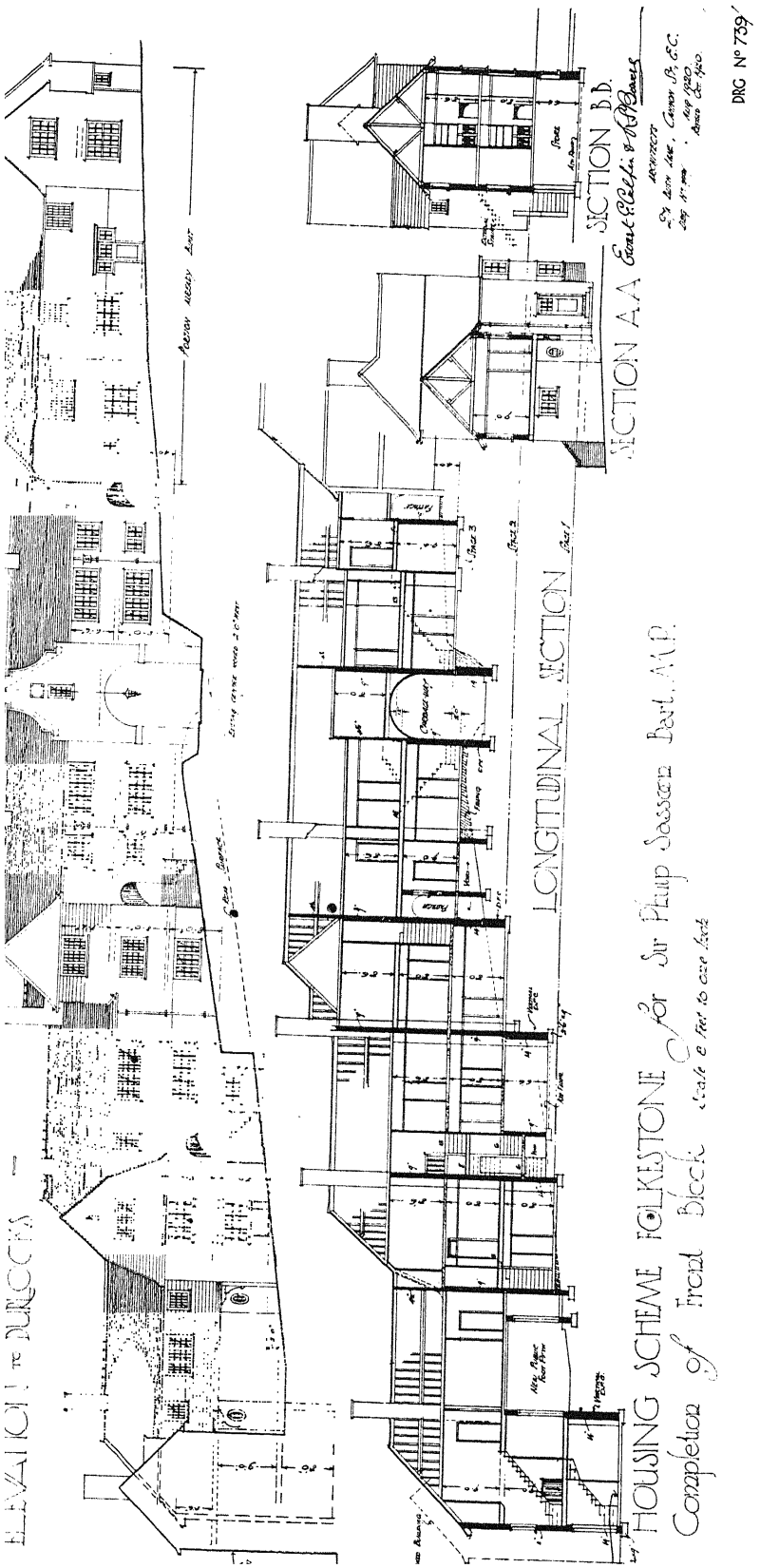
CULPIN and BOWERS, Architects.

FOLKESTONE

PLATE XI.

FOLKESTONE

PLATE XII.



CULPIN and BOWERS, Architects.



Hammersmith Borough Council Scheme.
The materials are London stock bricks with red dressings.

MATTHEW J. DAWSON, F.R.I.B.A., Architect.

SHEPHERD'S BUSH, LONDON

PLATE XIII.



Detail of Central Feature of Group on previous page.
The bay has a reinforced concrete roof.

MATTHEW J. DAWSON, F.R.I.B.A., Architect.

SHEPHERD'S BUSH, LONDON

PLATE XV.

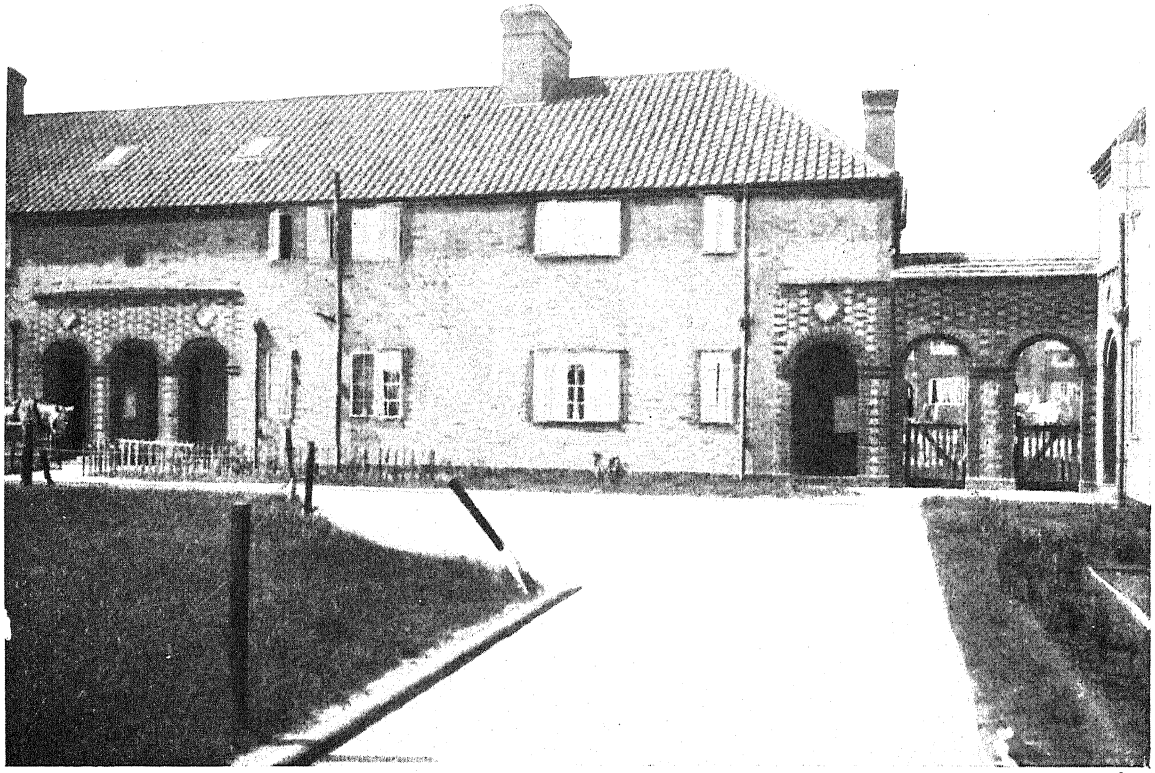


PLATE XVI.



Hammersmith Borough Council Scheme.

MATTHEW DAWSON, F.R.I.B.A., Architect.

SHEPHERD'S BUSH, LONDON

PLATE XVII.



Hammersmith Borough Council Scheme.
View in a Quadrangle.

J. ERNEST FRANCK, F.R.I.B.A., Architect.



Hammersmith Borough Council Scheme.

J. ERNEST FRANCK, F.R.I.B.A., Architect.

SHEPHERD'S BUSH, LONDON

PLATE XVIII.

PLATE XIX.

In this Municipal Scheme full advantage has been taken by the Architect of the natural amenities of the site.

A. S. SOUTAR, Architect.

PLATE XX.

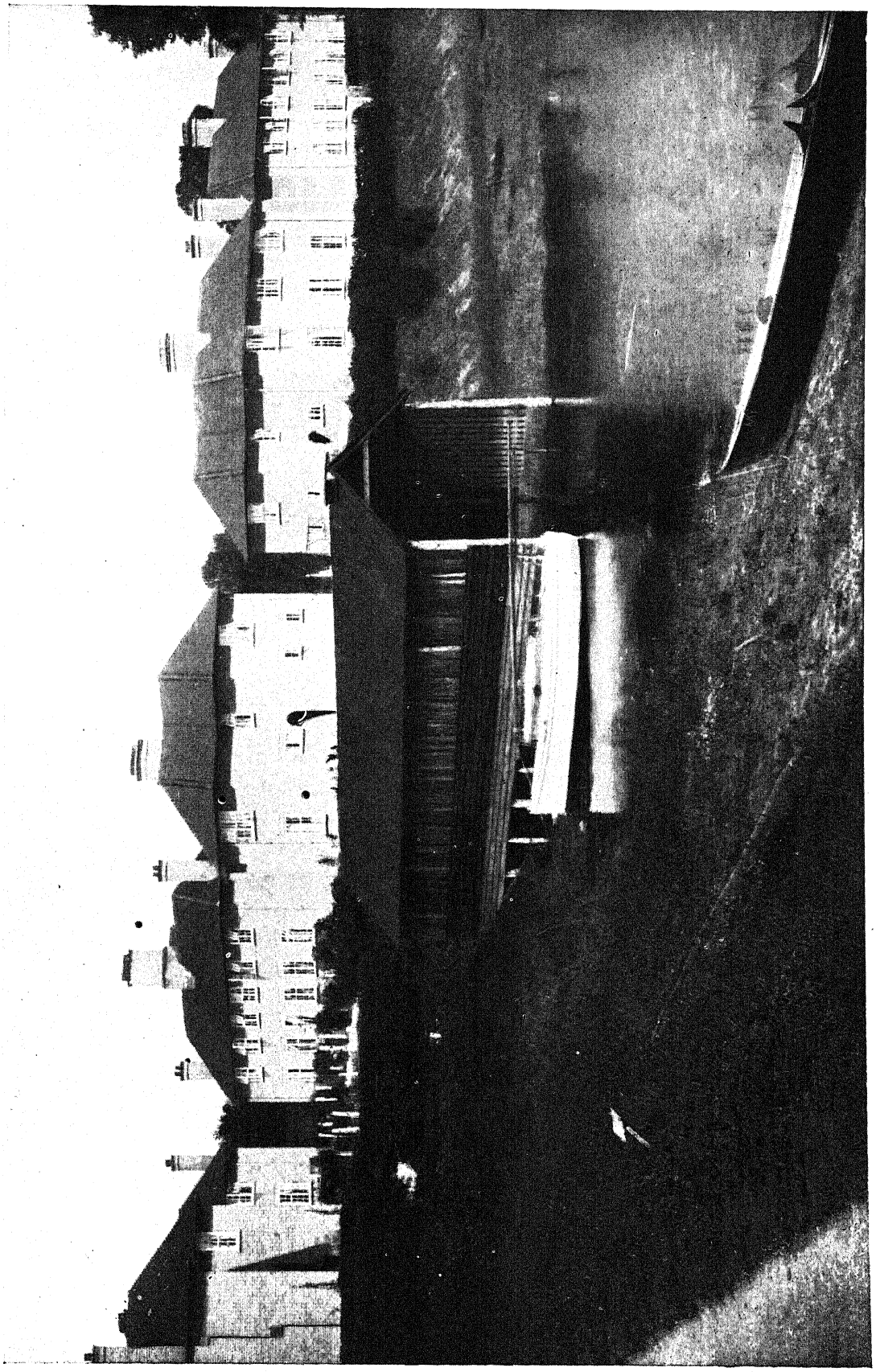


PLATE XXI.



A. S. SOUTAR, Architect.

PLATE XXII.



Overlooking the Reservoir.

A. S. SOUTAR, Architect.

PLATE XXIII.

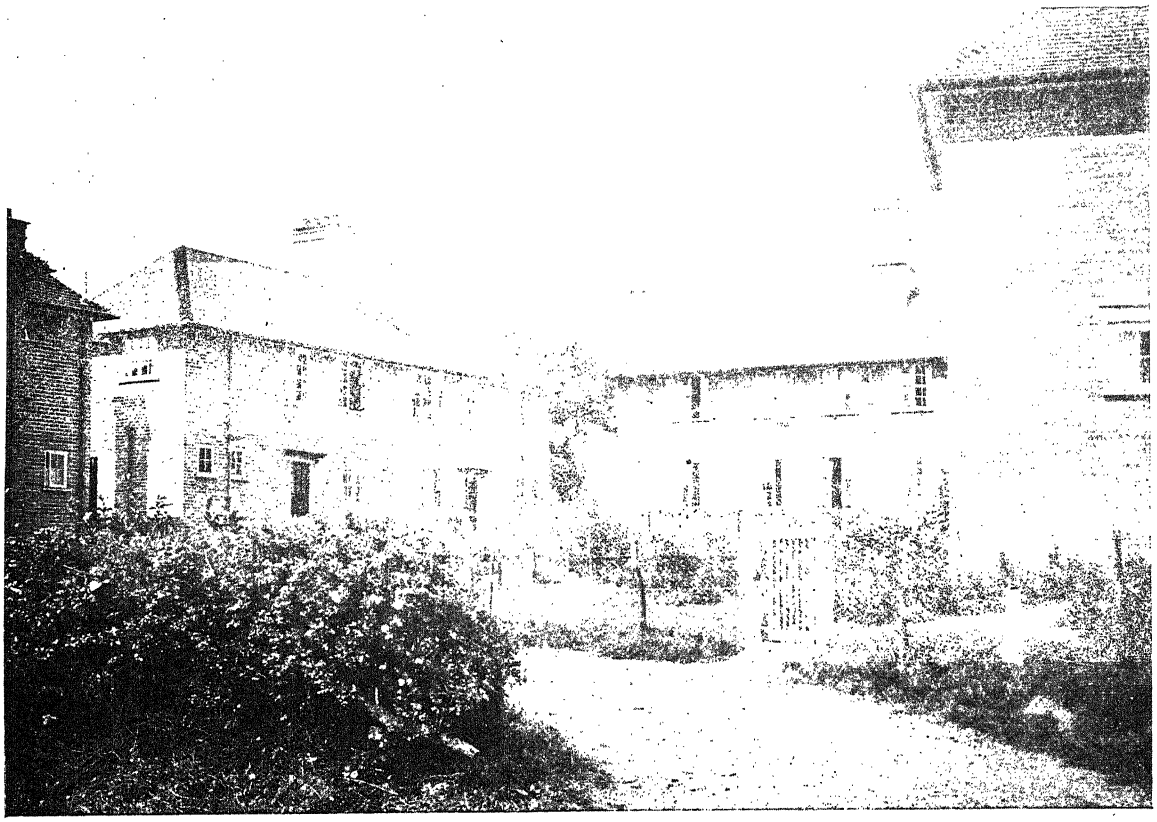
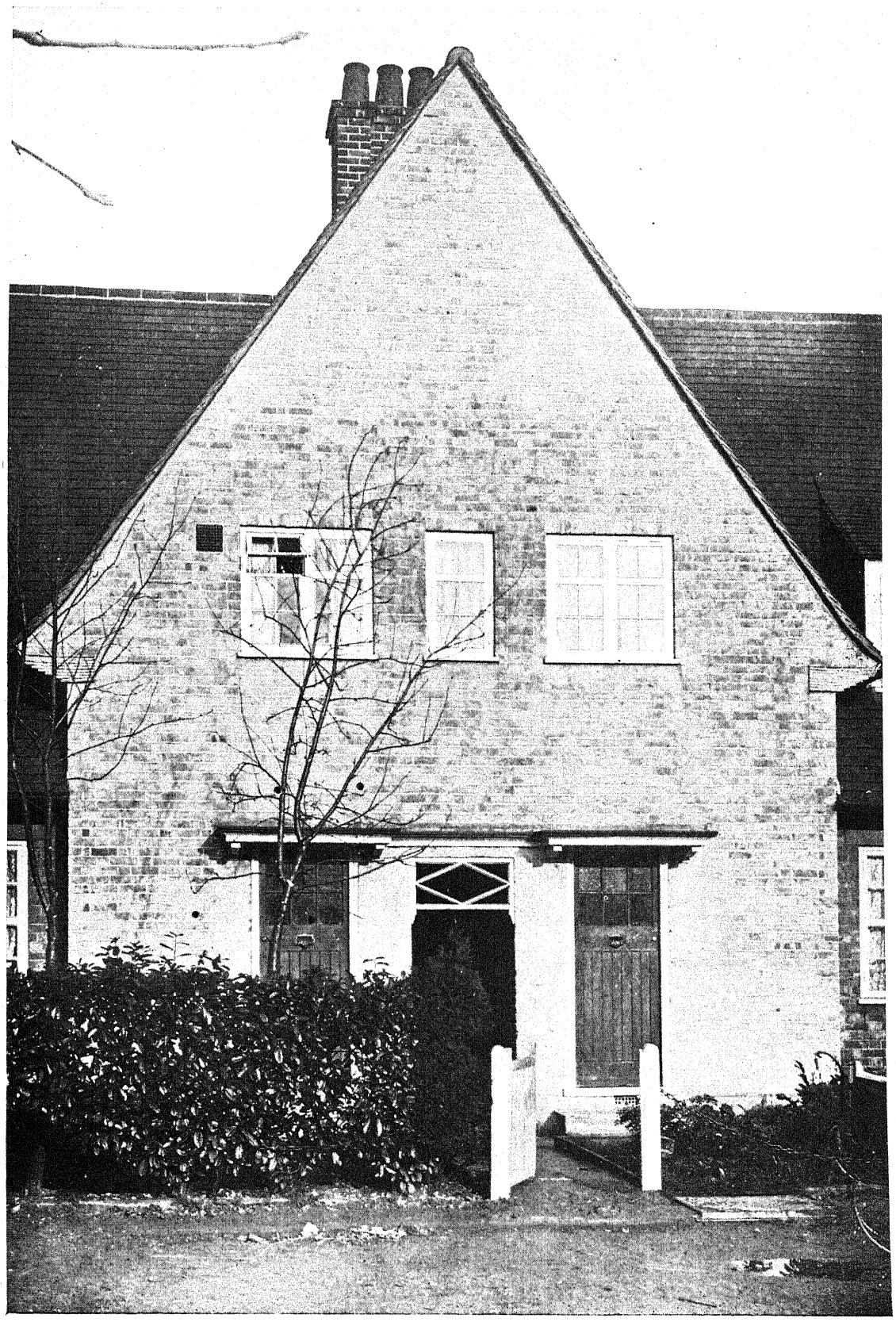


PLATE XXIV.



A. S. SOUTAR, Architect.



A. S. SOUTAR, Architect.

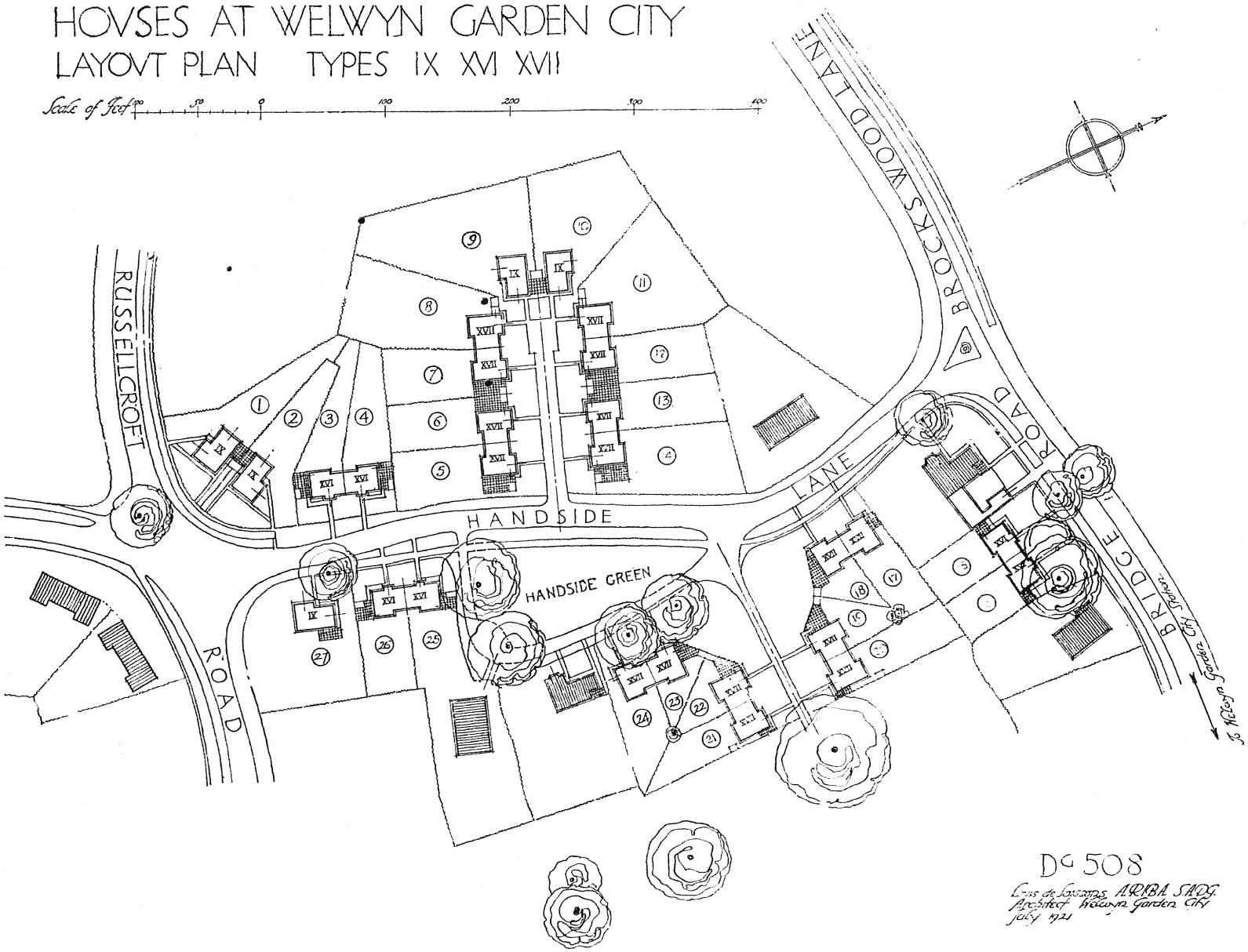
PLATE XXVI.



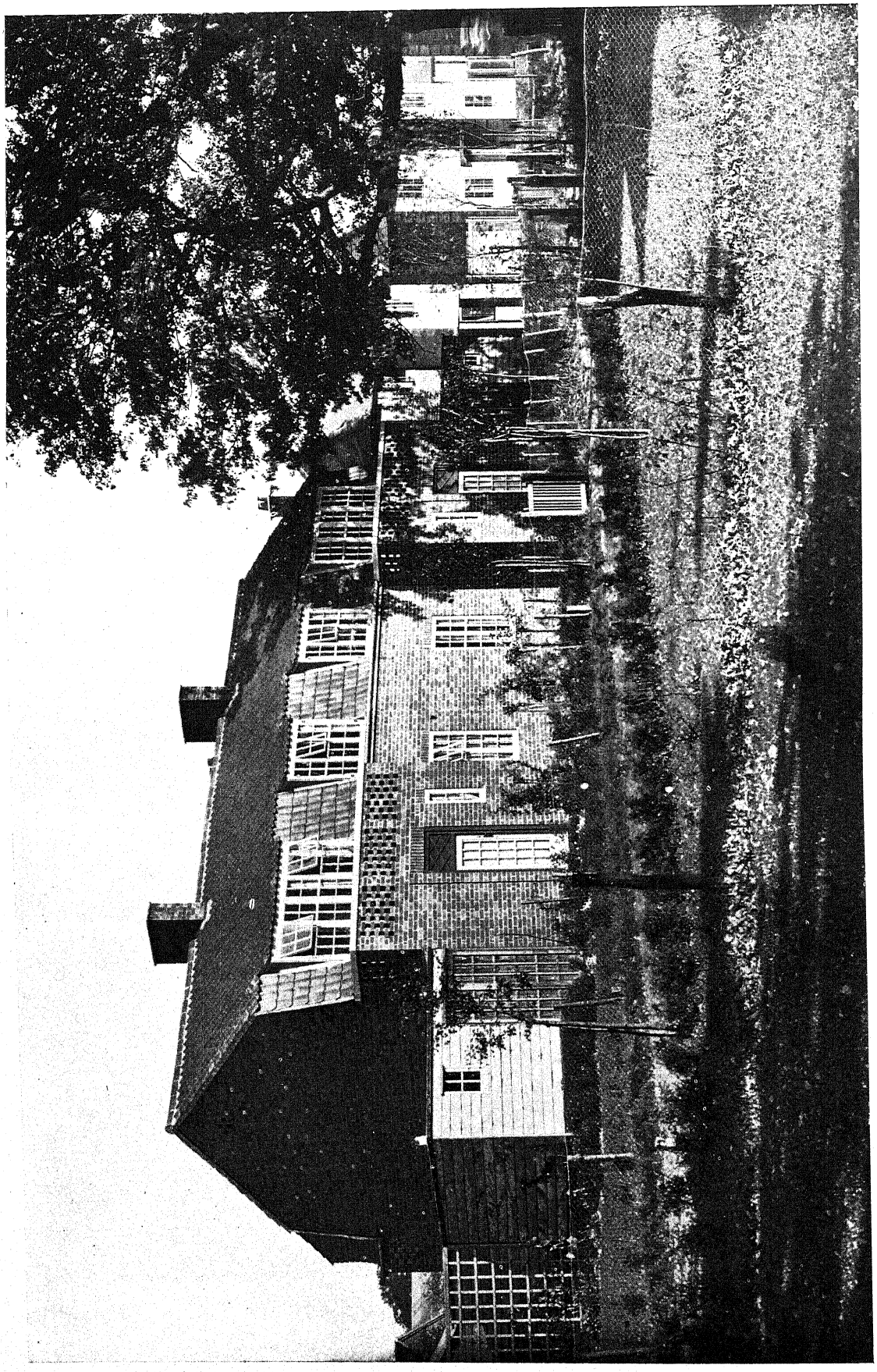
PLATE XXVII.



A. S. SOUTAR, Architect.



Typical Site Plan showing Cottages, six to eight to the Acre. (*See next two plates.*)



Pair of Parlour Cottages.

LOUIS DE SOISSONS, F.R.I.B.A., S.A.D.G., Architect.

PLATE XXX.



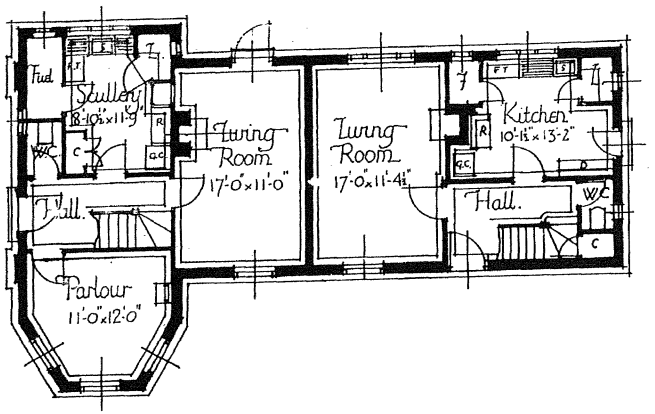
A Close of Mansard-roofed Houses.

PLATE XXXI.

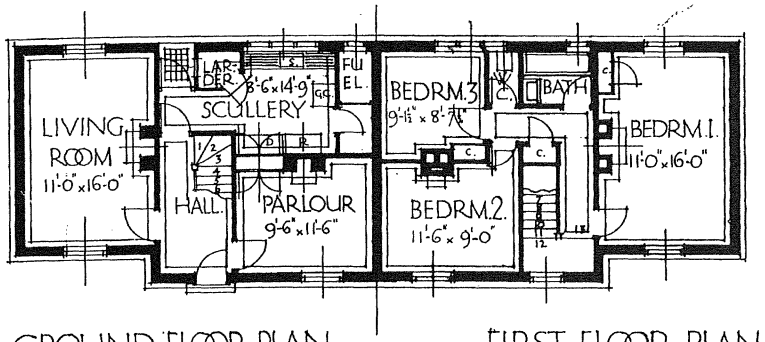


Part of scheme for the Welwyn Rural District Council.

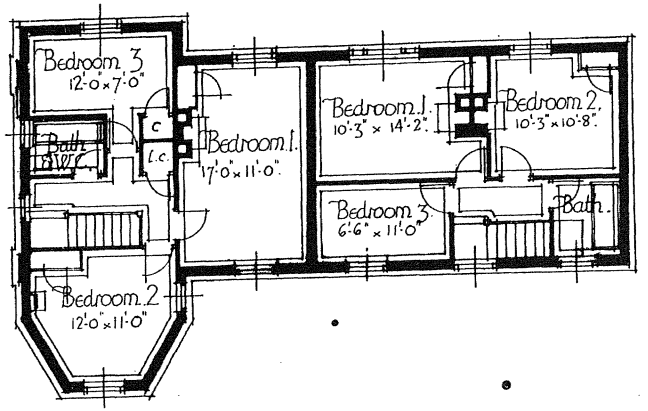
LOUIS DE SOISSONS, F.R.I.B.A., S.A.D.G., Architect.

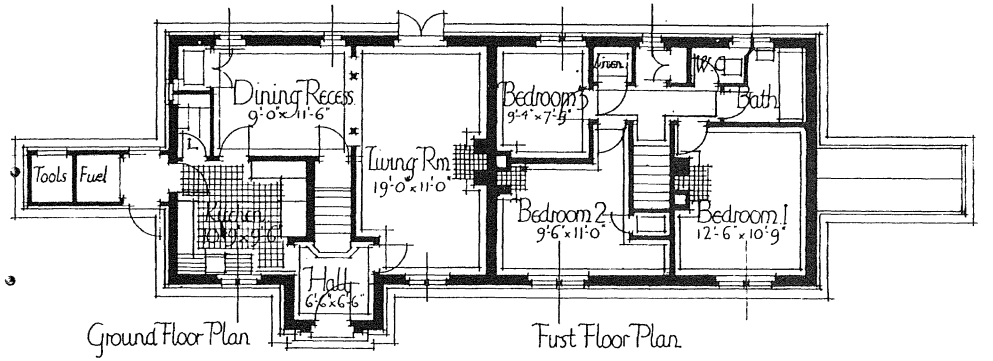


GROUND FLOOR PLAN.



GROUND FLOOR PLAN FIRST FLOOR PLAN.



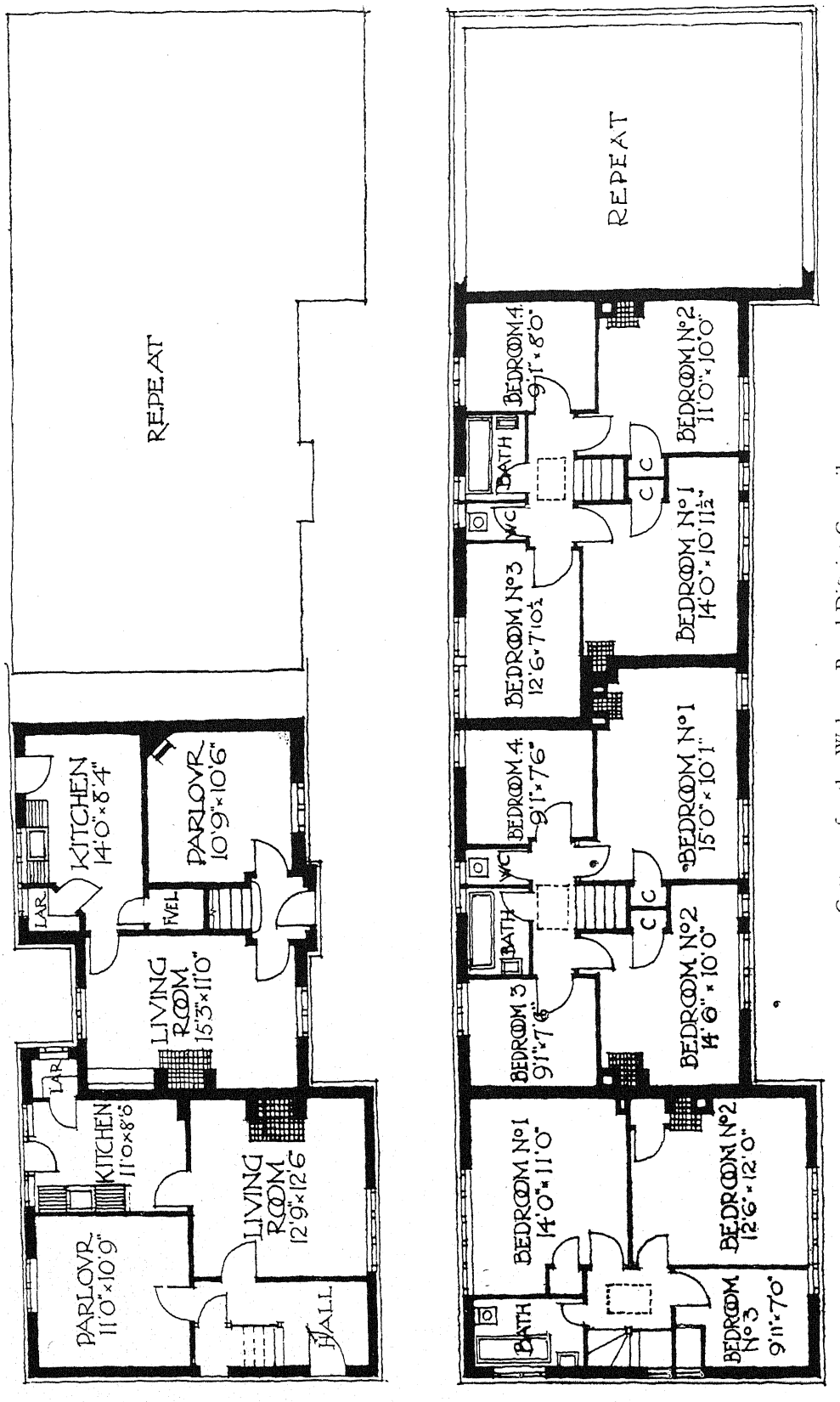


Ground Floor Plan First Floor Plan.

Plans of Cottages illustrated opposite.
Built for a Public Utility Society.

LOUIS DE SOISSONS, F.R.I.B.A., S.A.D.G., Architect.

A Close of Cottages.
Built of concrete blocks, cement rendered.
LOUIS DE SOISSONS, F.R.I.B.A., S.A.D.G., Architect.



Cottages for the Welwyn Rural District Council.

See Plate XXXVI.

LOUIS DE SOISSONS, F.R.I.B.A., S.A.D.G., Architect.

PLATE XXXV.

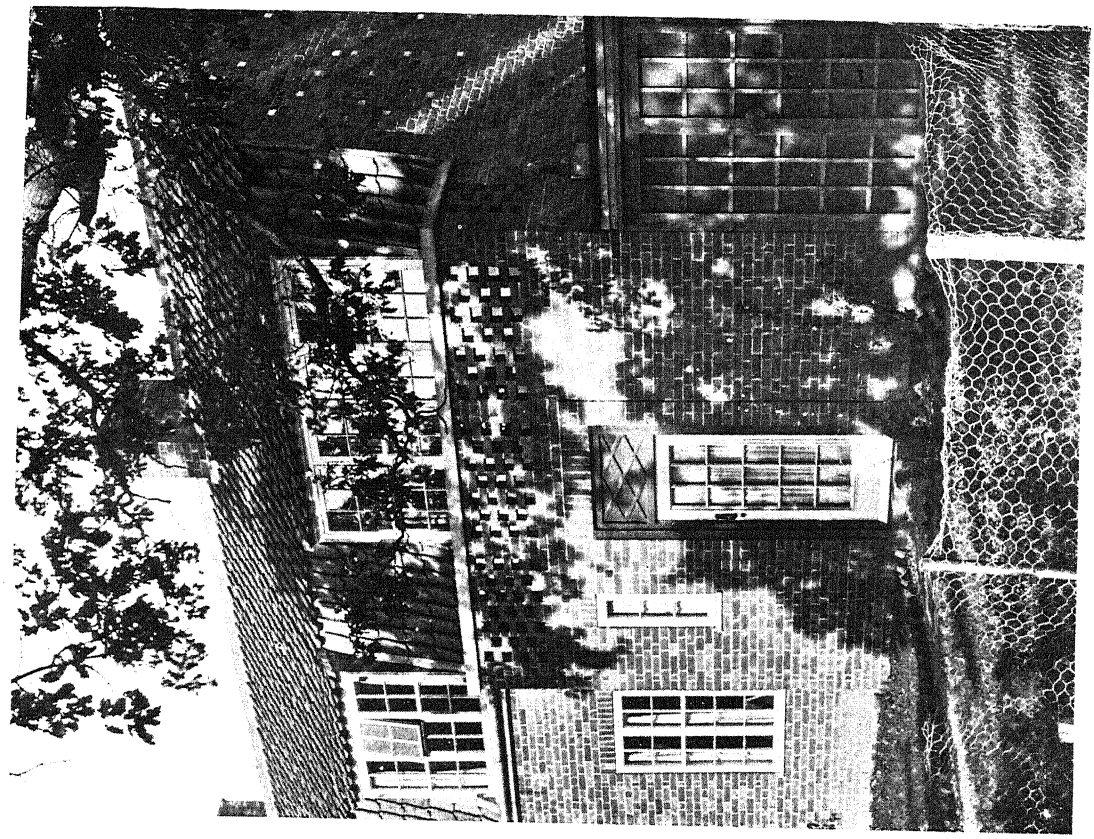
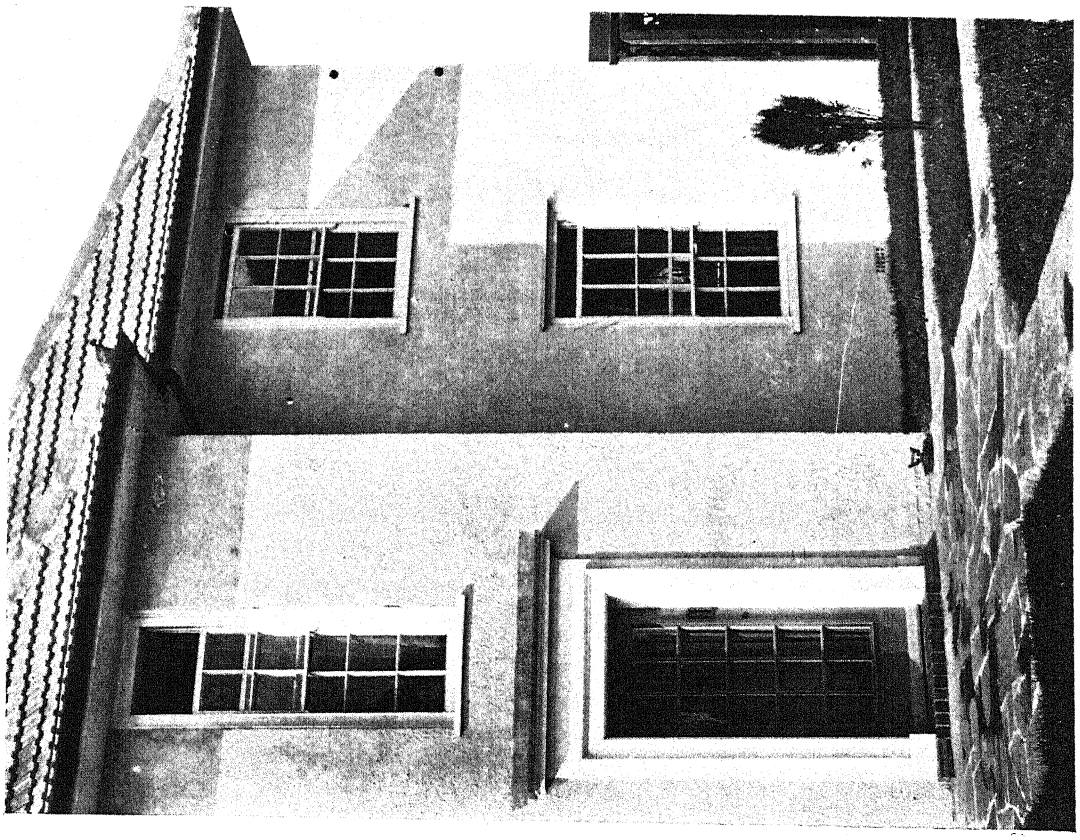


PLATE XXXVI.

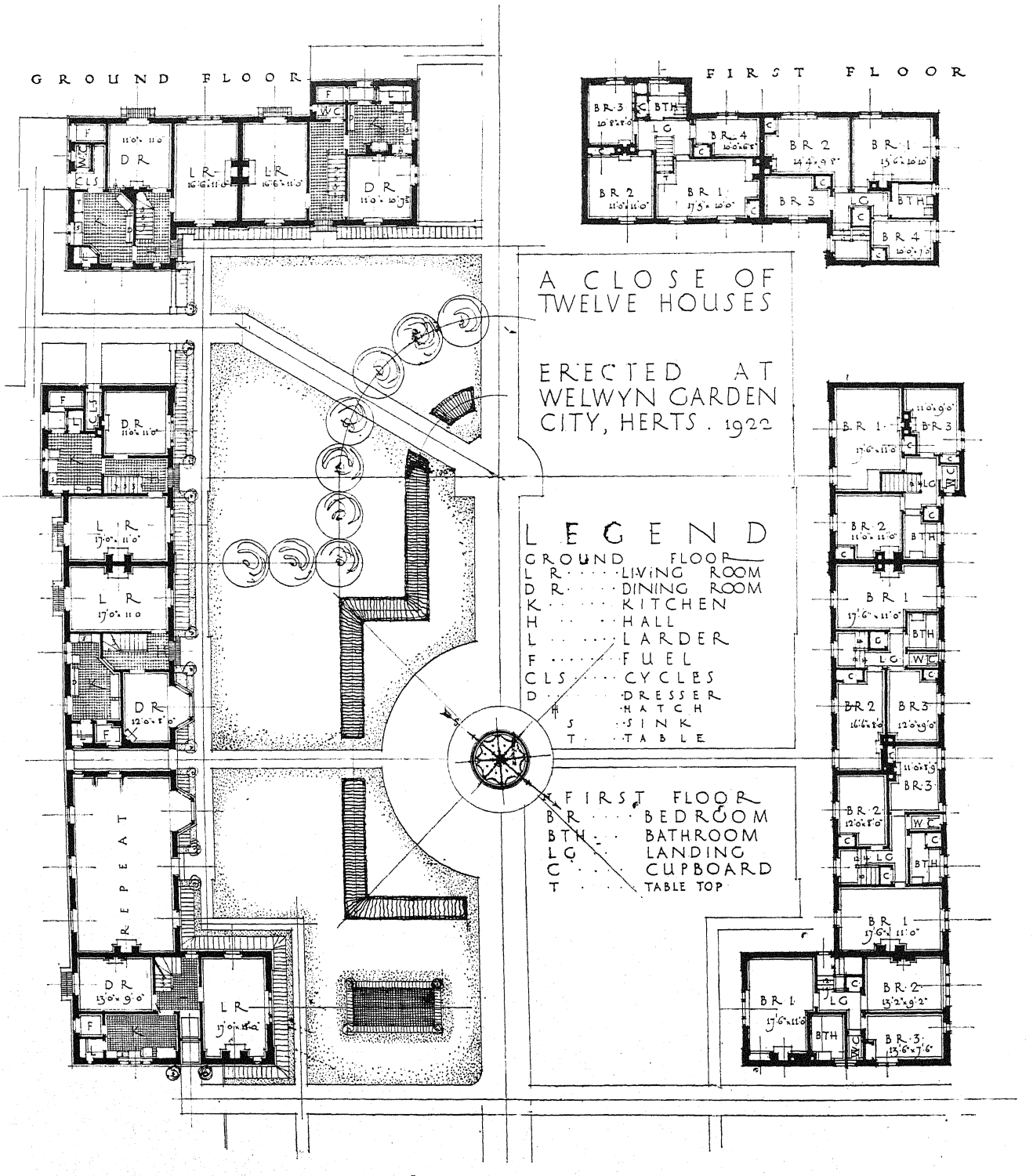


Details of Doorways.

LOUIS DE SOISSONS, F.R.I.B.A., S.A.D.G., Architect.

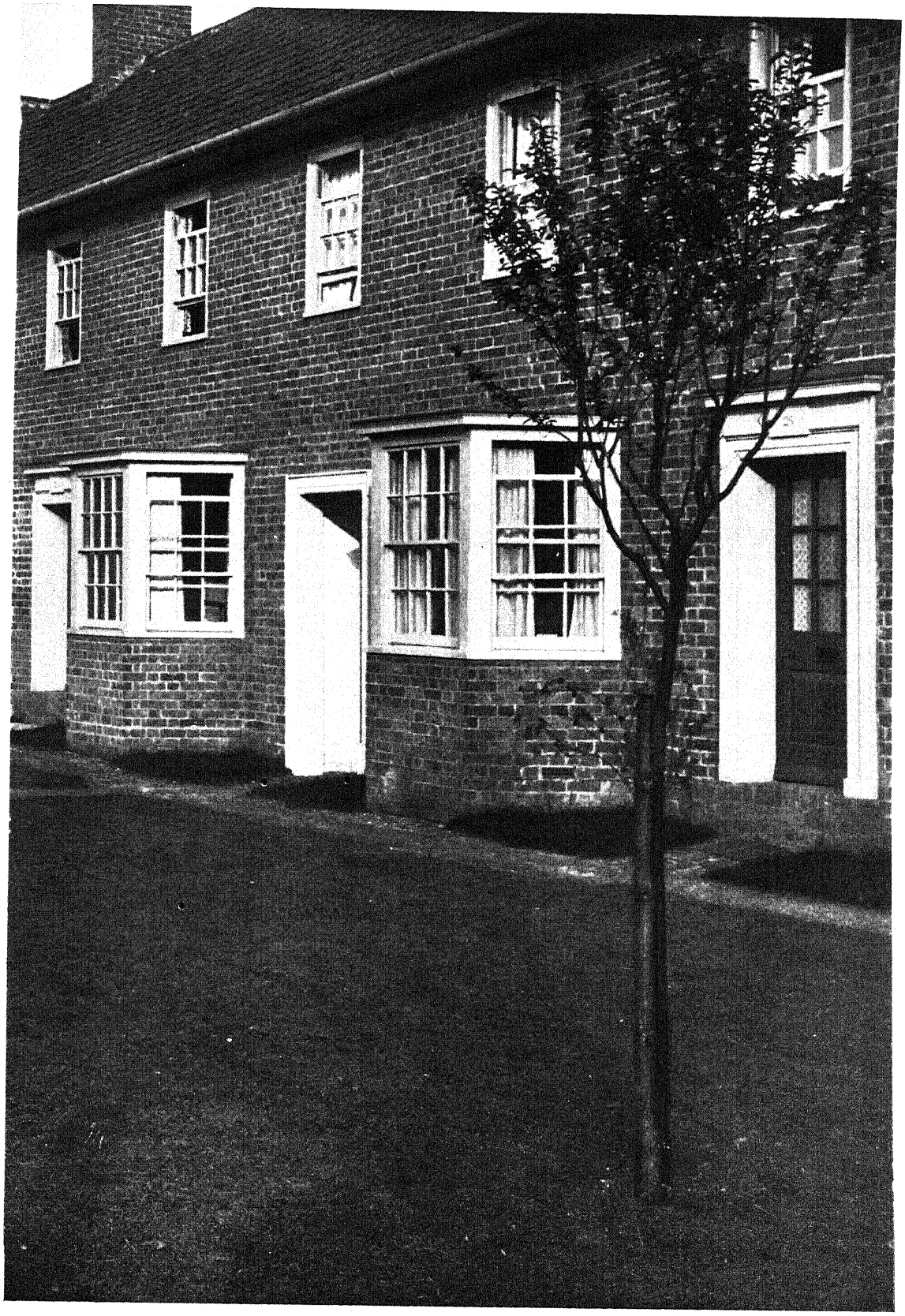
WELWYN GARDEN CITY

PLATE XXXVII.



See next three photographs.

HENNELL and JAMES, Architects.



Dellcot Close. A Public Utility Society Scheme.

C. MURRAY HENNELL, F.S.I., and C. H. JAMES, A.R.I.B.A., Architects.

PLATE XXXIX.

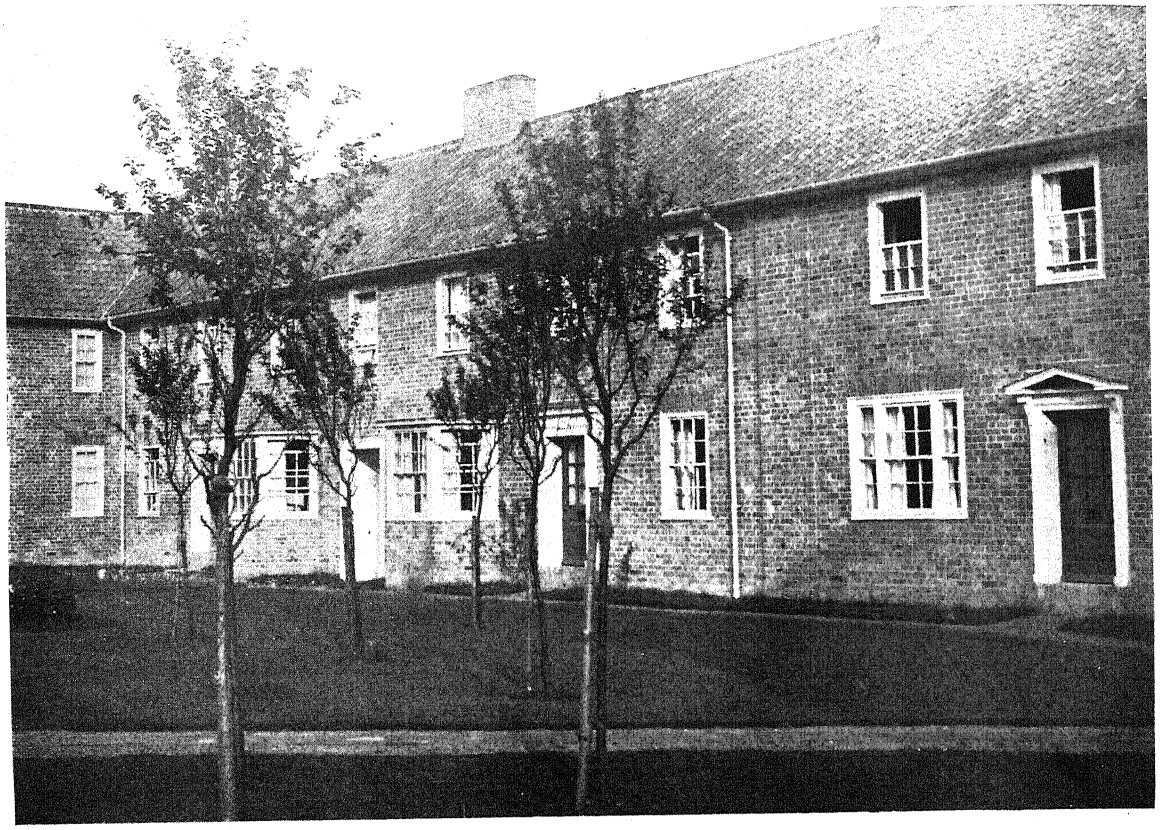


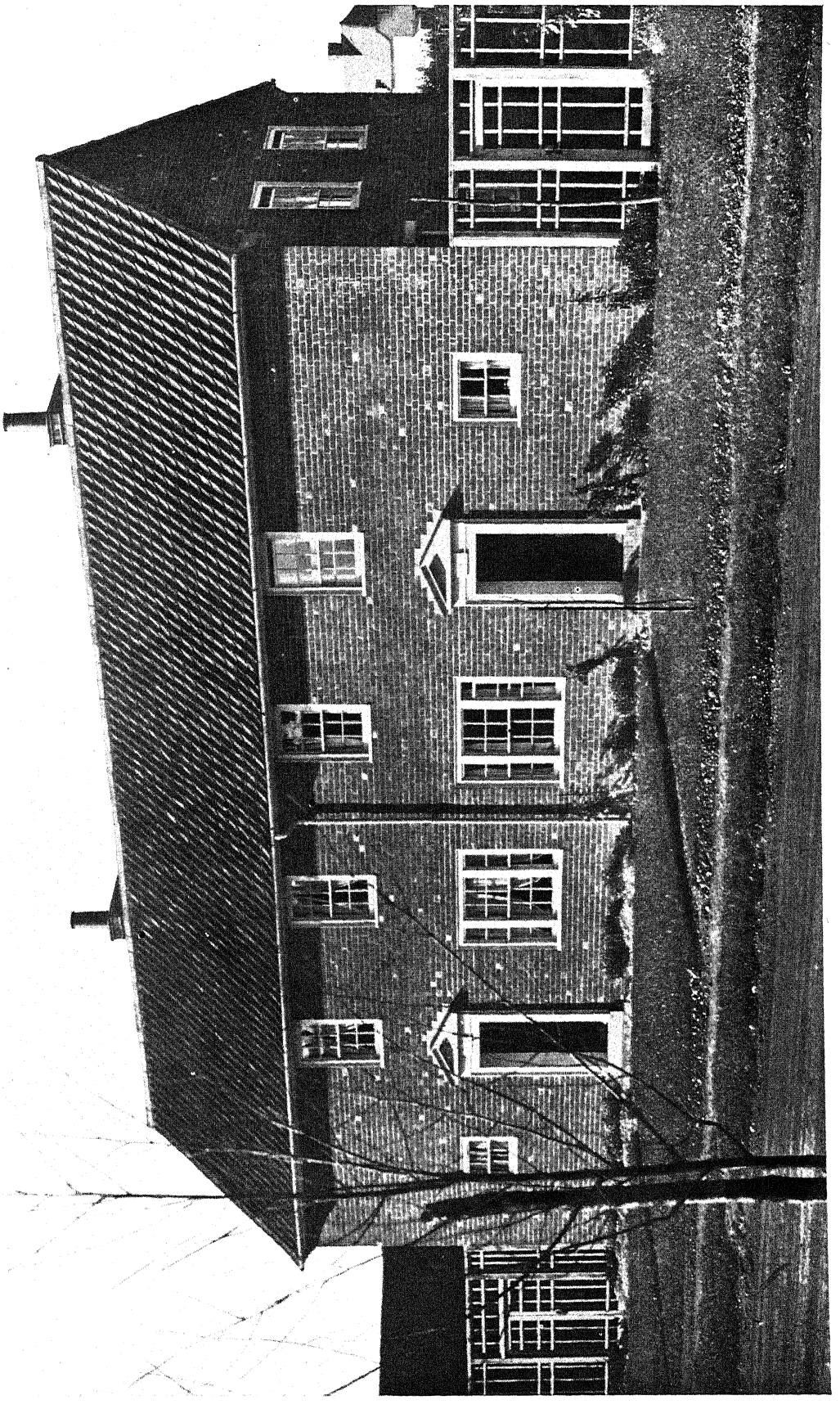
PLATE XL.



Two Views of Dellcot Close.
The absence of front fences is to be noted.

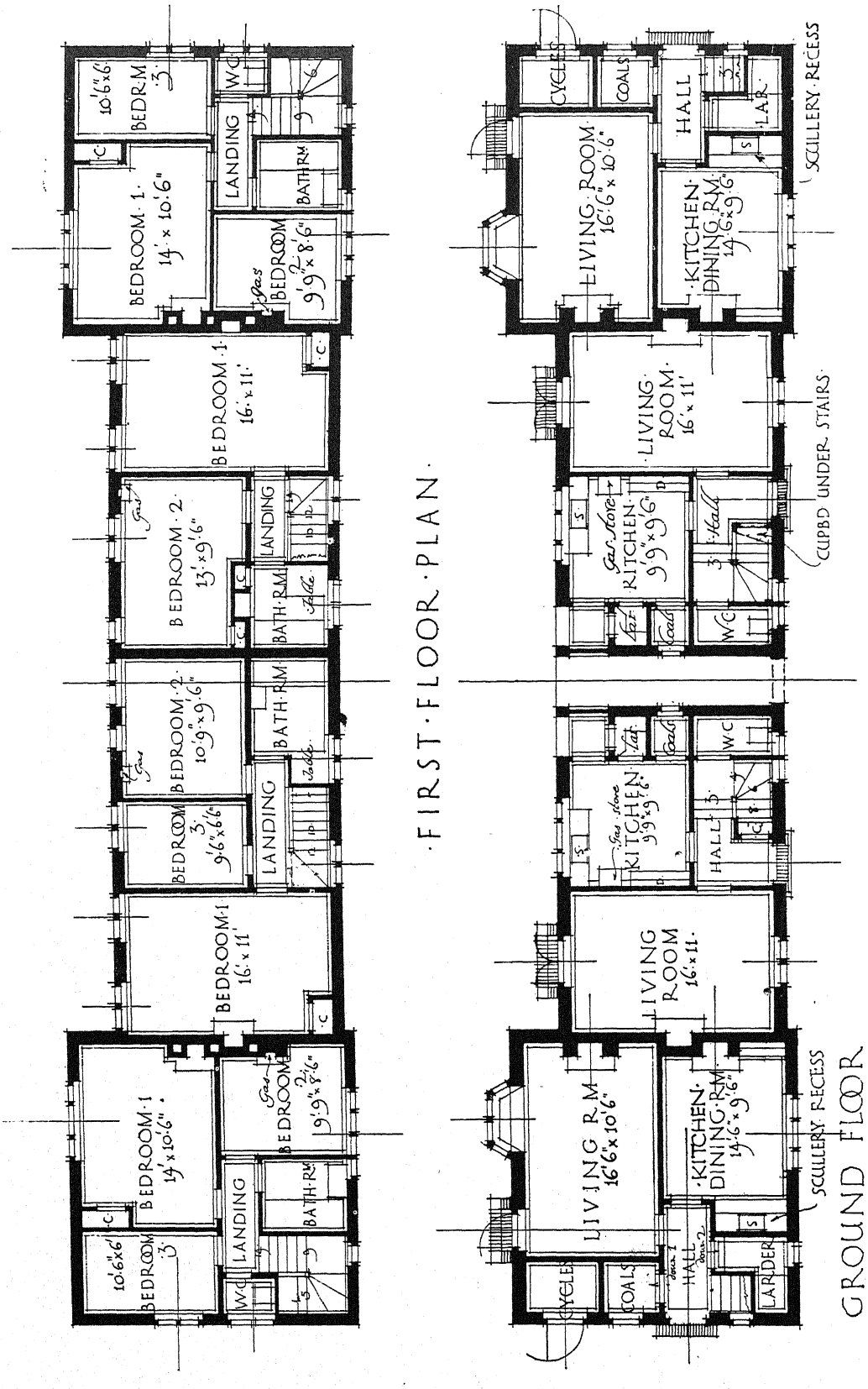
HENNELL and JAMES, Architects.

PLATE XLI.



Pair of Non-parlour Cottages.

HENNELL and JAMES, Architects.



A Group of Four Cottages for a Public Utility Society.

See photograph opposite.

HENNELL and JAMES, Architects.



A Group of Four Cottages for a Public Utility Society.

The gables are in sawn elm weather boarding left in its natural state.

HENNELL and JAMES, Architects.

PLATE XLIV.



PLATE XLV.



Elm weather boarding with bricks made on the estate.
HENNELL and JAMES, Architects.



A Detail.

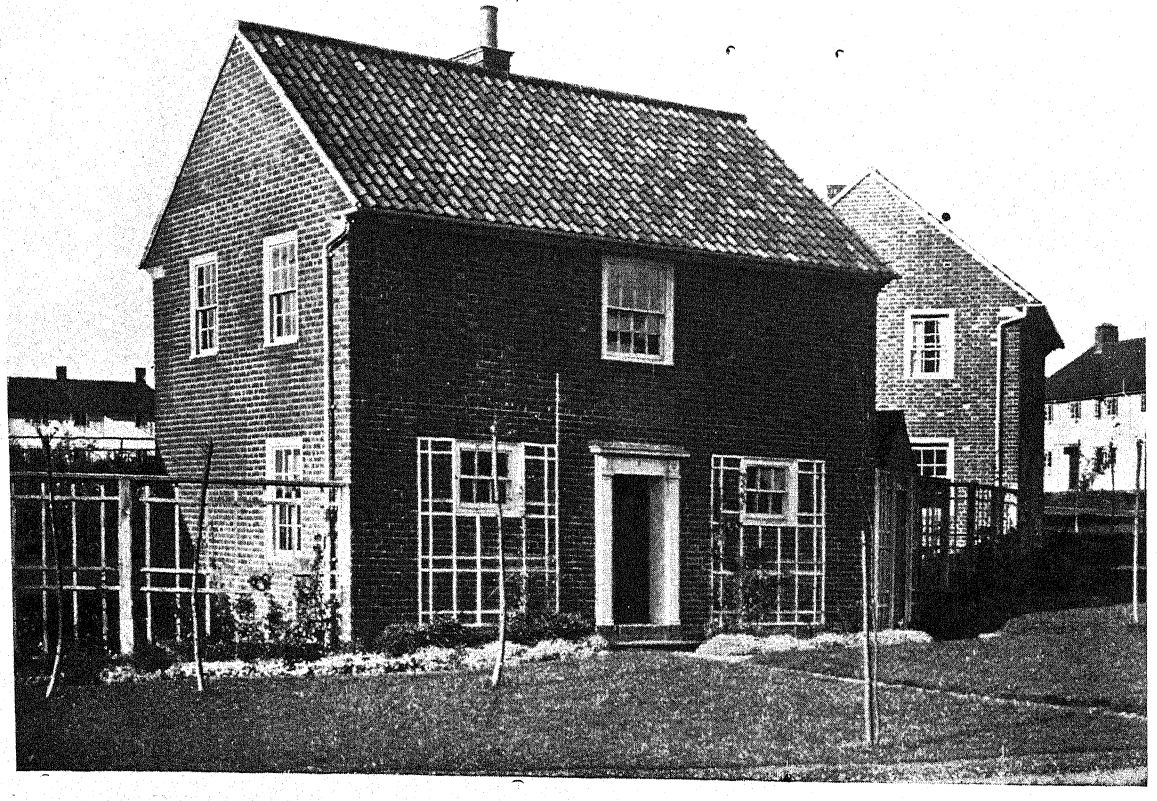
HENNELL and JAMES, Architects.

PLATE XLVII.



Two Detached Cottages linked by Outbuildings.

PLATE XLVIII.



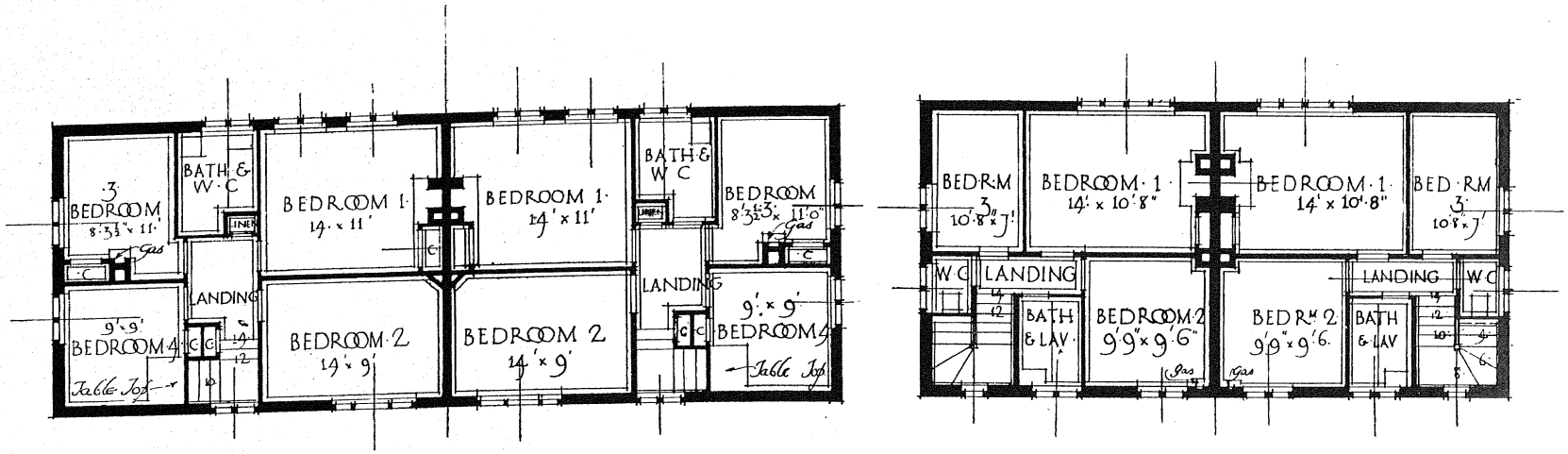
Detached Cottage of the Non-parlour Type.

HENNELL and JAMES, Architects.

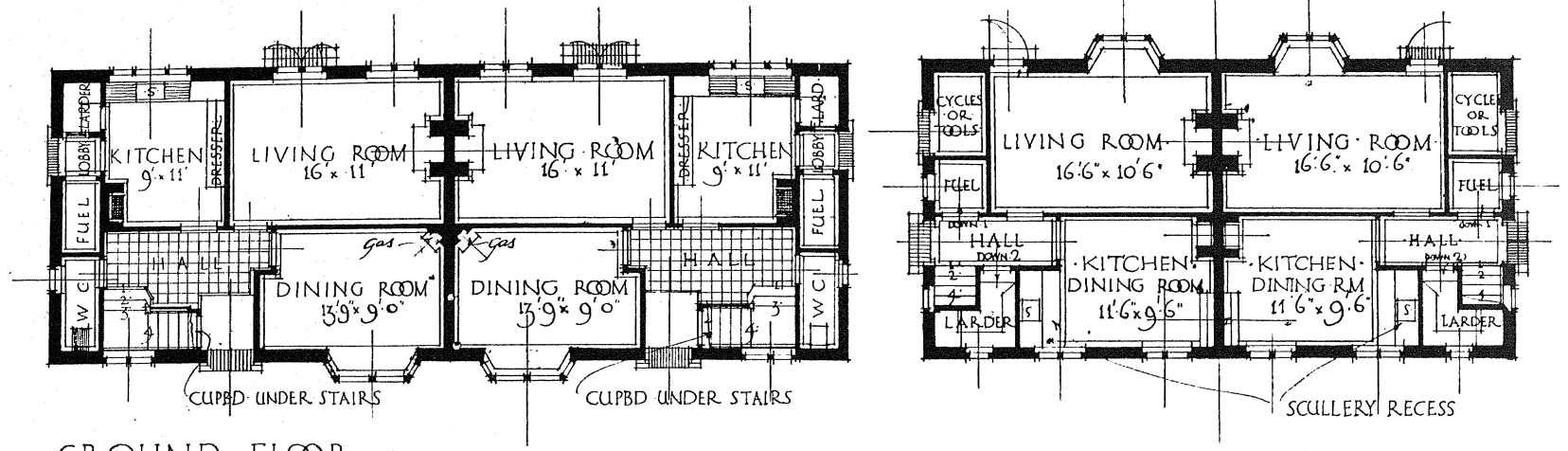


Detail of a Doorway.

HENNELL and JAMES, Architects.



·FIRST · FLOOR·



·GROUND · FLOOR·

Two Pairs of Cottages for a Public Utility Society.

HENNELL and JAMES, Architects.

PLATE LI.



Four-Bedroom Houses. *See left-hand plan opposite.*
The roughcast is coloured yellow, and the doors bright-blue.

PLATE LII.



Cottages of the Non-parlour Type.
HENNELL and JAMES, Architects.

PLATE LIII.

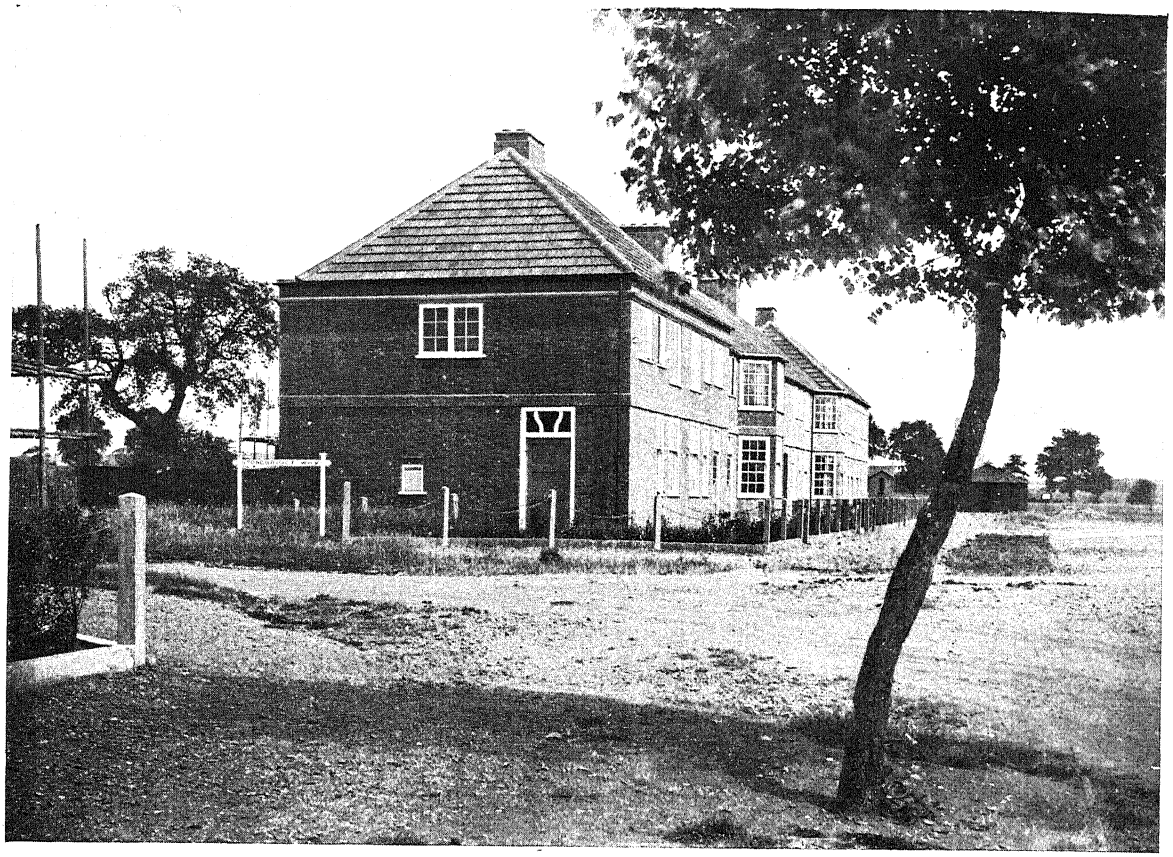


PLATE LIV.



Houses at Wembley Hill Garden Suburb, designed for erection by builders for sale.
OLIVER HILL, Architect.

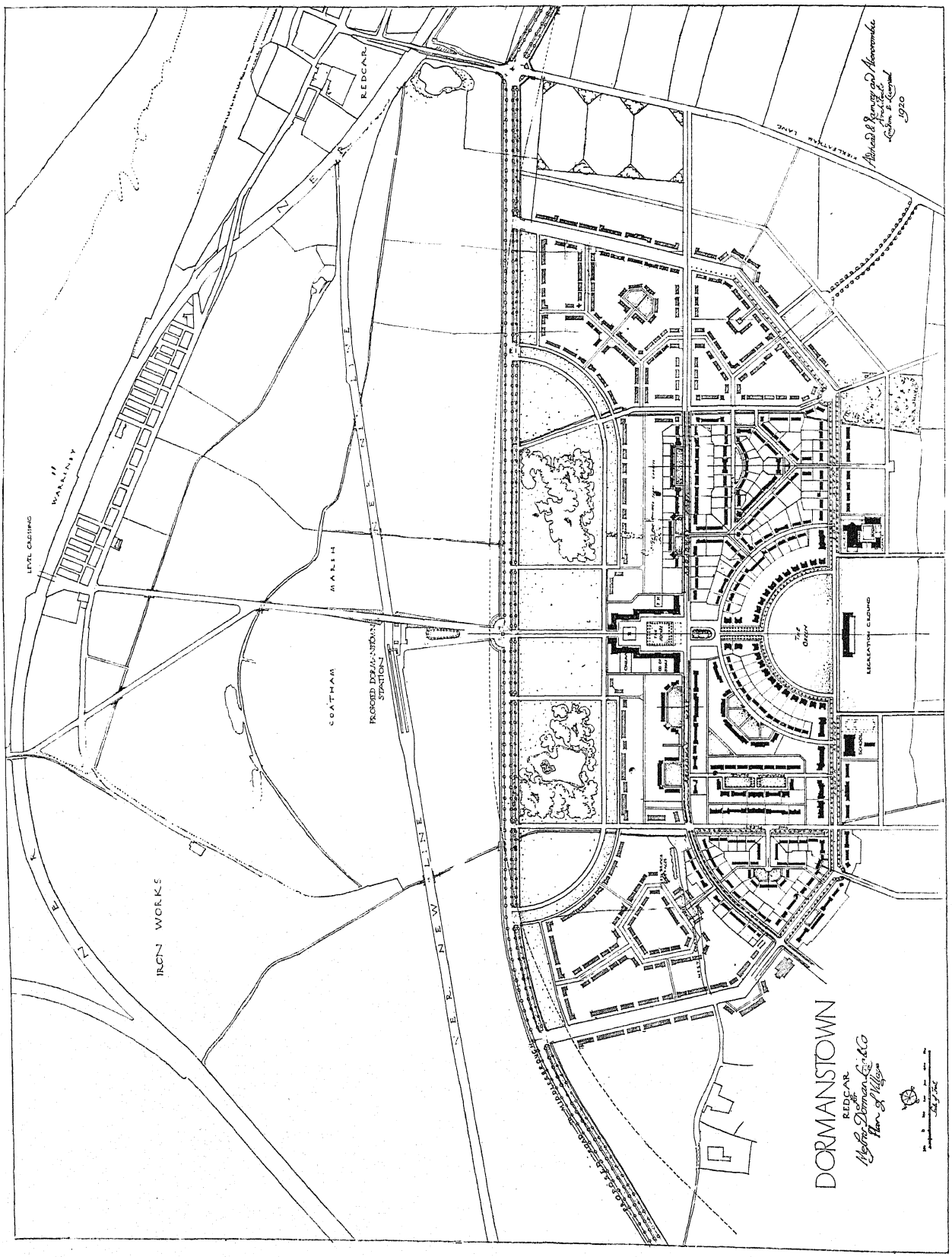


Houses at Wembley Hill Garden Suburb, designed for erection by builders for sale.

OLIVER HILL, Architect.

DORMANSTOWN

PLATE LVI.



General Lay-out Plan.

ADSHEAD and RAMSEY and ABERCROMBIE, Architects.

PLATE LVII.



Brick Houses at Dormanstown, built during the war, and before the scarcity of this material became acute.

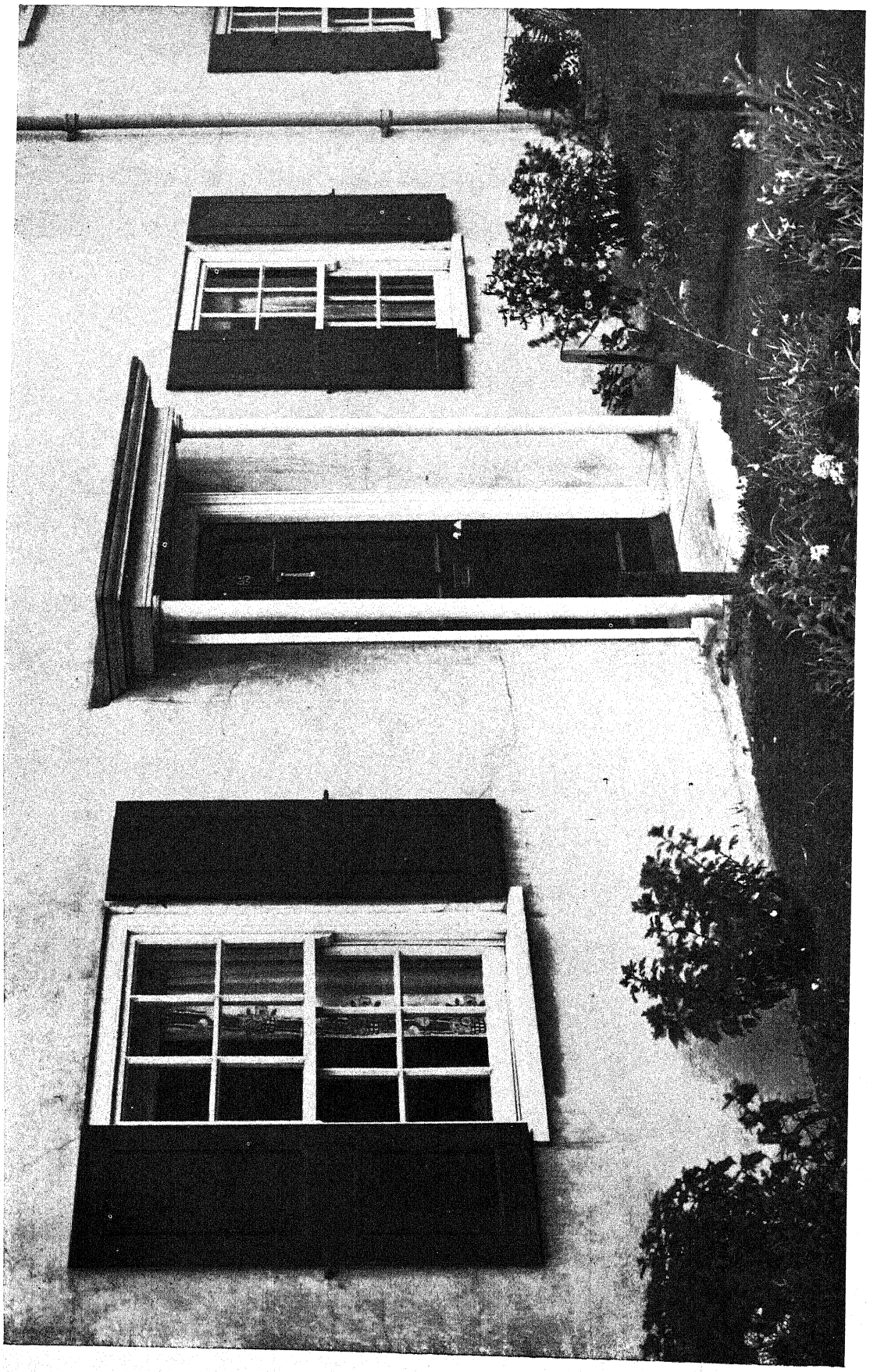
PLATE LVIII.



Ten Cottages in an Unbroken Line.
Coupled doorways and two bay windows prevent a feeling of monotony.

PROFESSOR S. D. ADSHEAD, F.R.I.B.A., STANLEY C. RAMSEY, F.R.I.B.A., and PROFESSOR PATRICK ABERCROMBIE, M.A., A.R.I.B.A., Associated Architects.

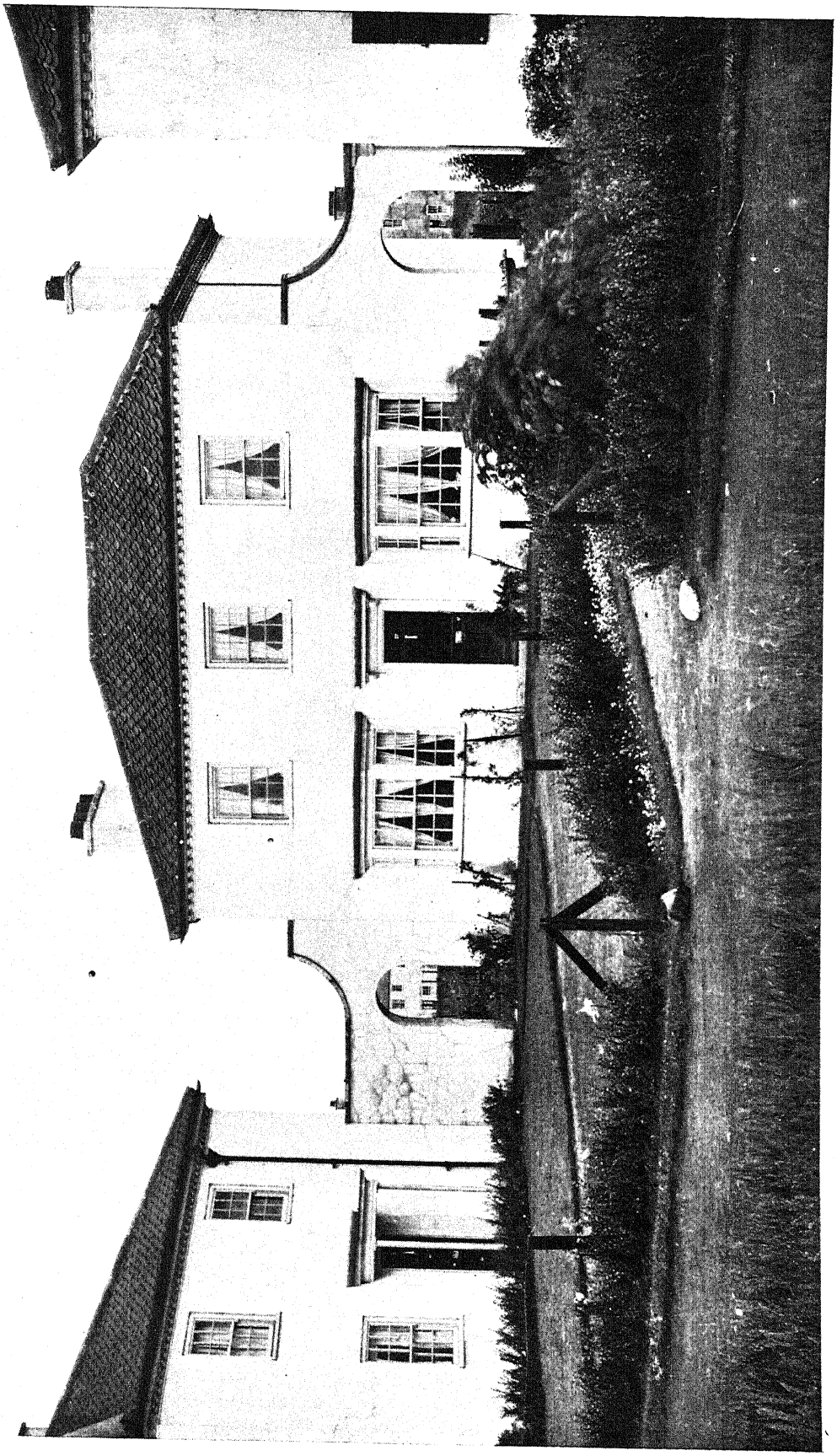
PLATE LIX.



Steel Frame Houses, built when bricks and bricklayers were difficult to obtain.

ADSHEAD and RAMSEY and ABERCROMBIE, Architects.

PLATE LX.



A single House set back from the road, and linked to its neighbours.

ADSHEAD and RAMSEY and ABERCROMBIE, Architects.

10960

PLATE LXI.



PLATE LXII.



Dormanstown, Redcar. Two views in a curved road.

ADSHEAD and RAMSEY and ABERCROMBIE, Architects.

PLATE LXIII.



PLATE LXIV.

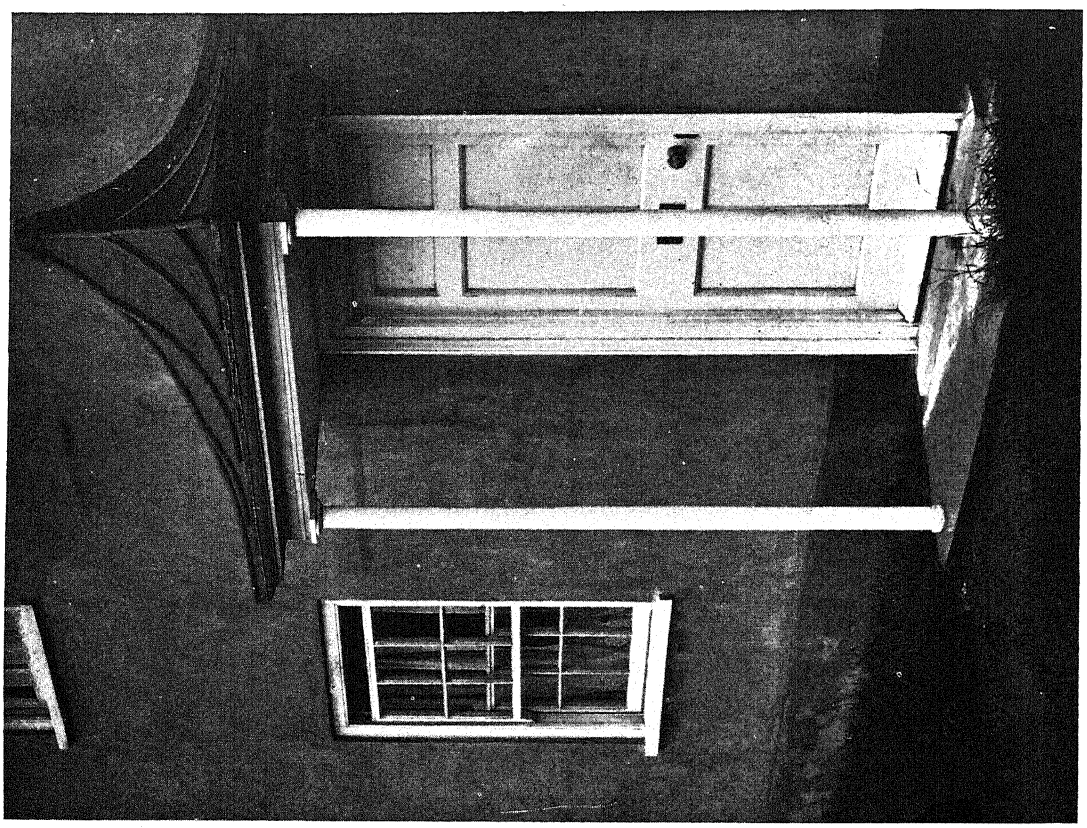


White-painted Doors and Windows on pink-coloured roughcast.

ADSHEAD and RAMSEY and ABERCROMBIE, Architects.

DORMANSTOWN

PLATE LXV.



ADSHEAD and RAMSEY and ABERCROMBIE, Architects.

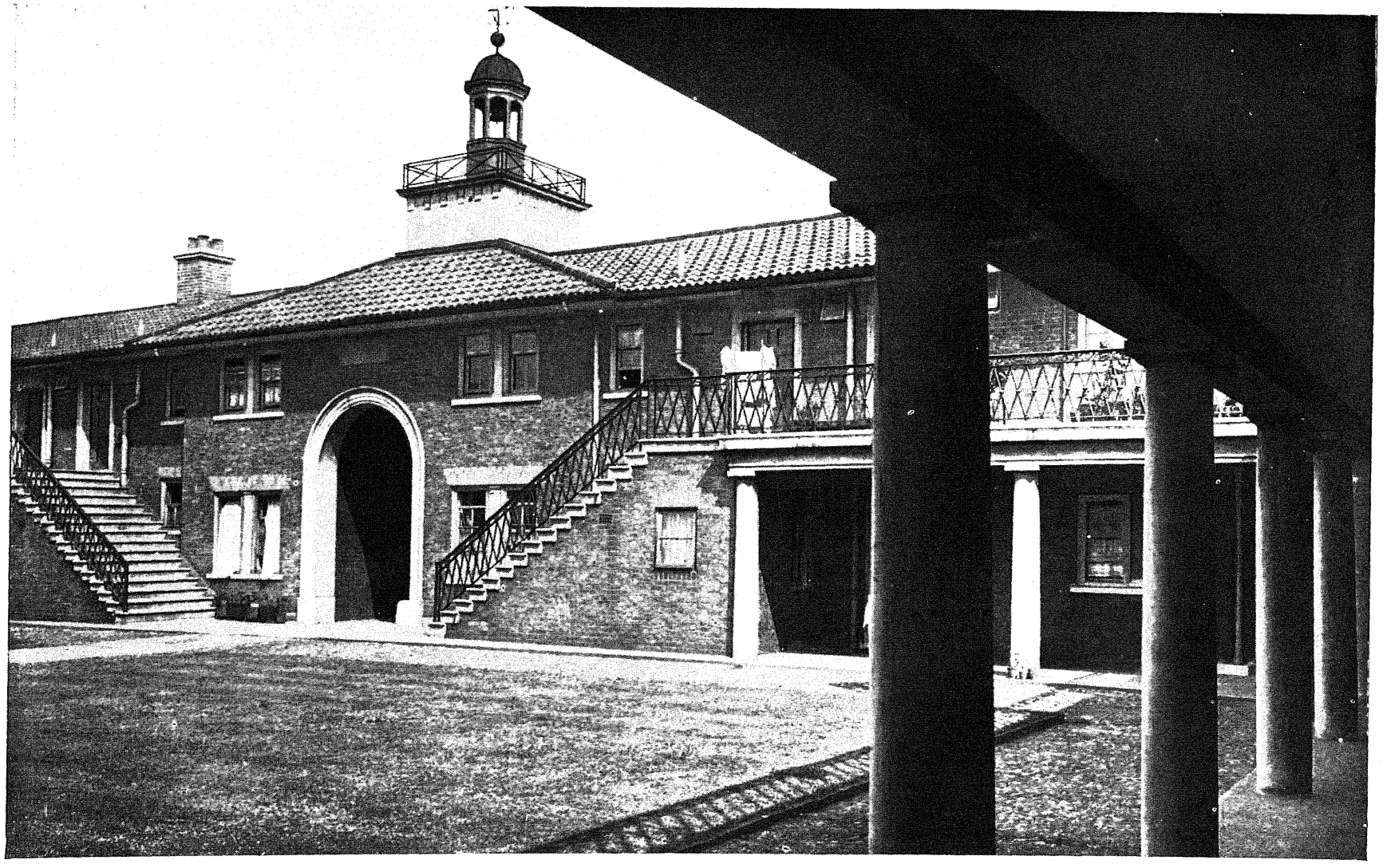
KENNINGTON, LONDON

PLATE LXVI.



Duchy of Cornwall Estate. Old People's Flats.

ADSHEAD and RAMSEY, Architects.



Duchy of Cornwall Estate.
Old People's Flats. The entrance from inside the quadrangle.

PROFESSOR S. D. ADSHEAD, F.R.I.B.A., and STANLEY C. RAMSEY, F.R.I.B.A., Architects.

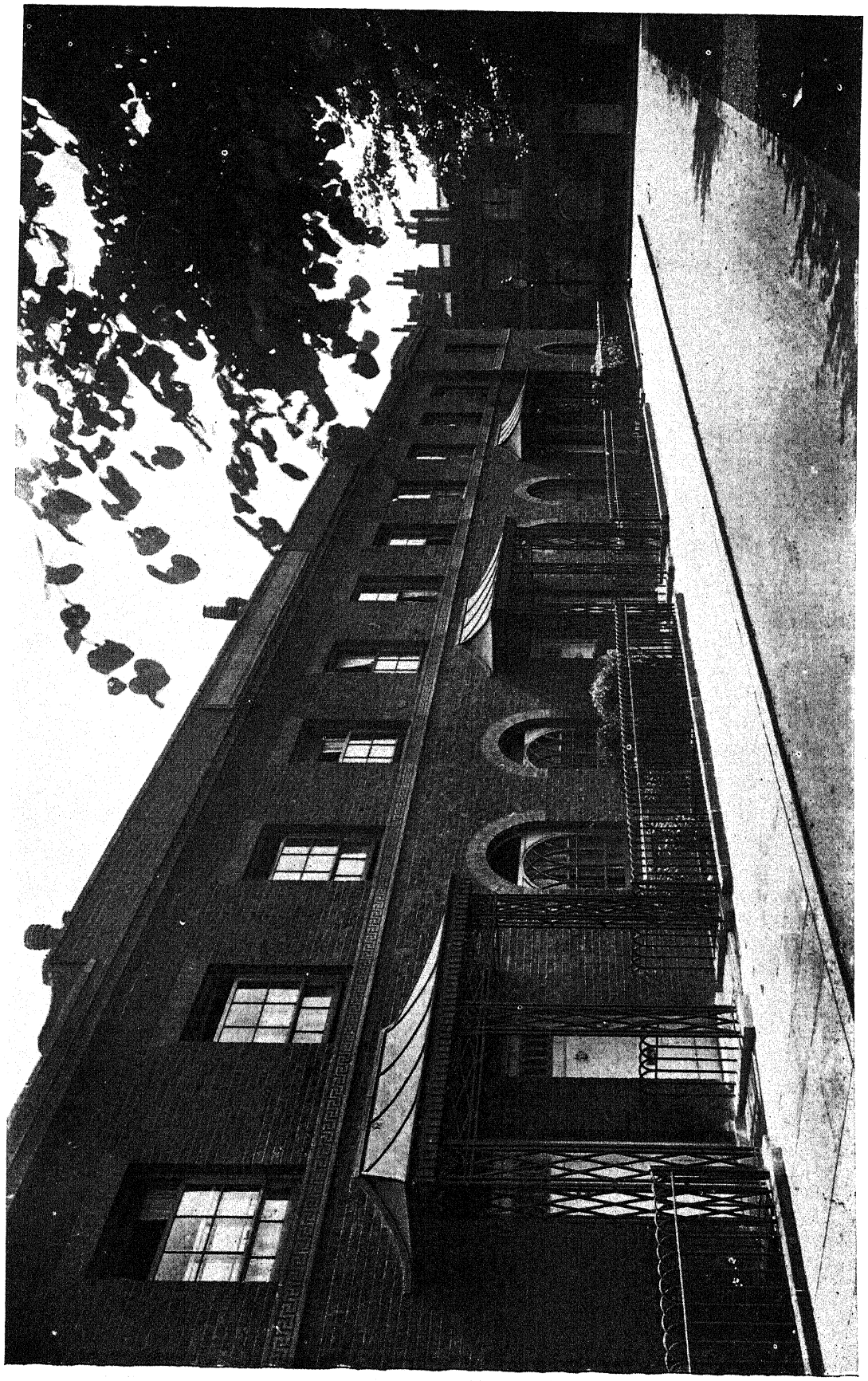


Duchy of Cornwall Estate.

ADSHEAD and RAMSEY, Architects.

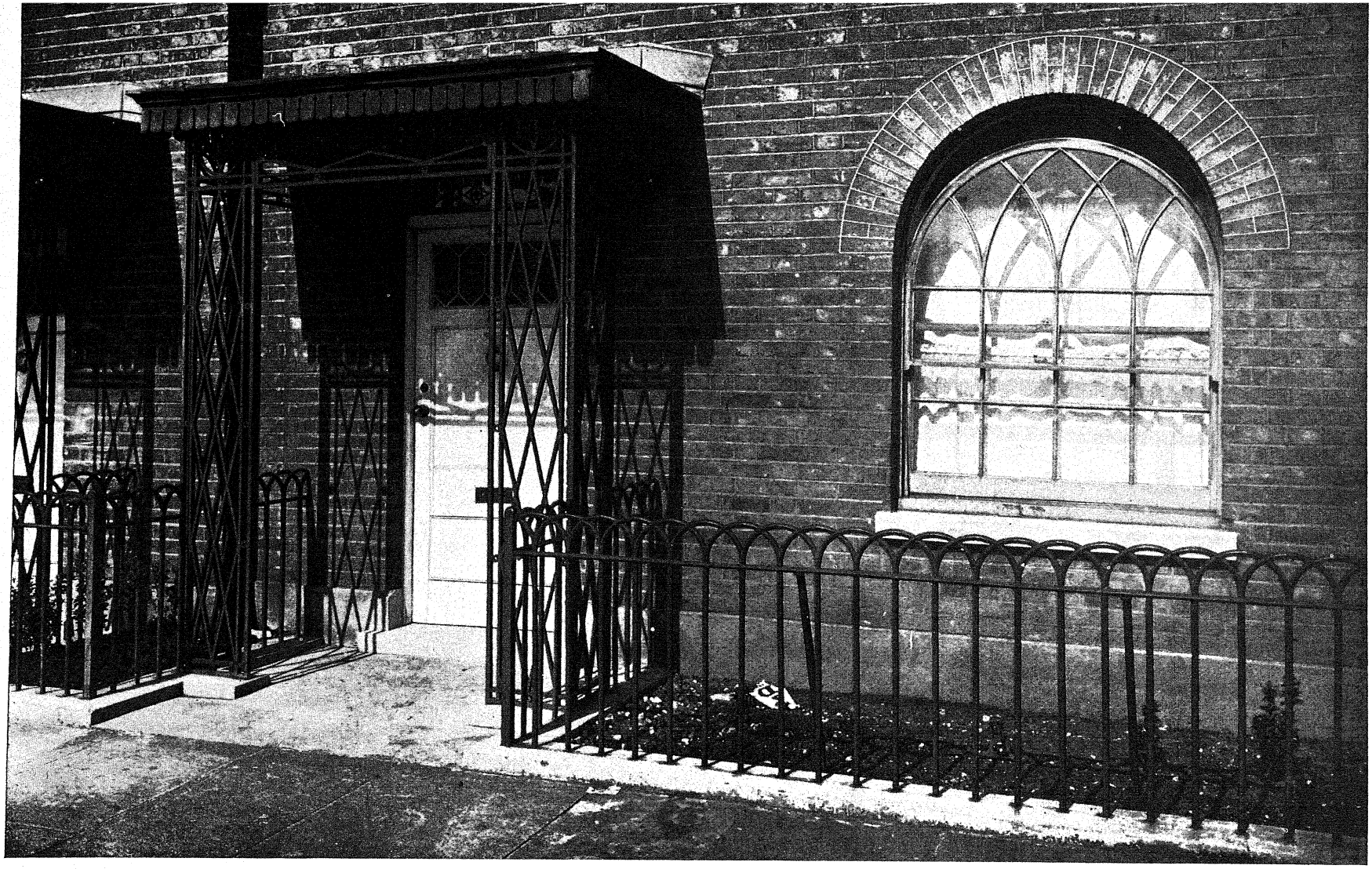
KENNINGTON, LONDON

PLATE LXIX.



Duchy of Cornwall Estate.
Rebuilding of an out-of-date area.

ADSHEAD and RAMSEY, Architects.



Duchy of Cornwall Estate, Kennington. Detail.
The porches and railings are in cast iron and the walls of London stock bricks.

ADSHEAD and RAMSEY, Architects.

Winchester Municipal Scheme. Cottages with Shops.

W. DUNN, F.R.I.B.A., and W. CURTIS GREEN, A.R.A., F.R.I.B.A., Joint Architects.

PLATE LXXII.

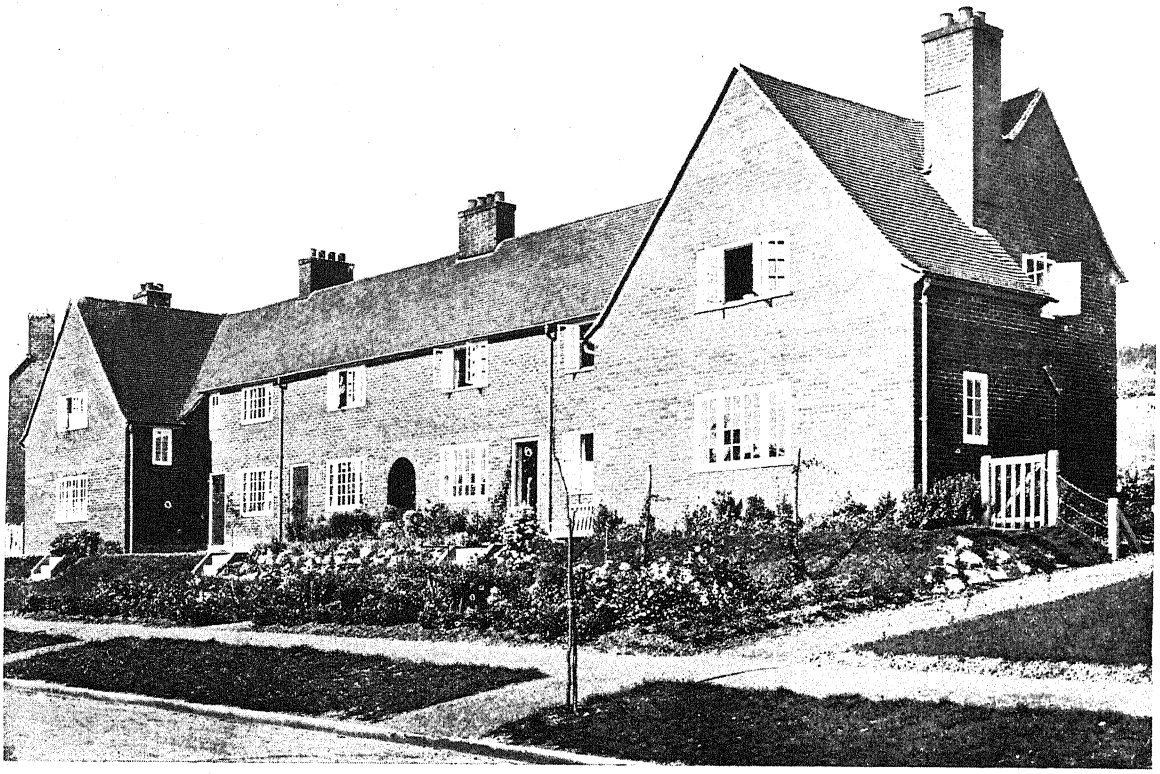


PLATE LXXIII.



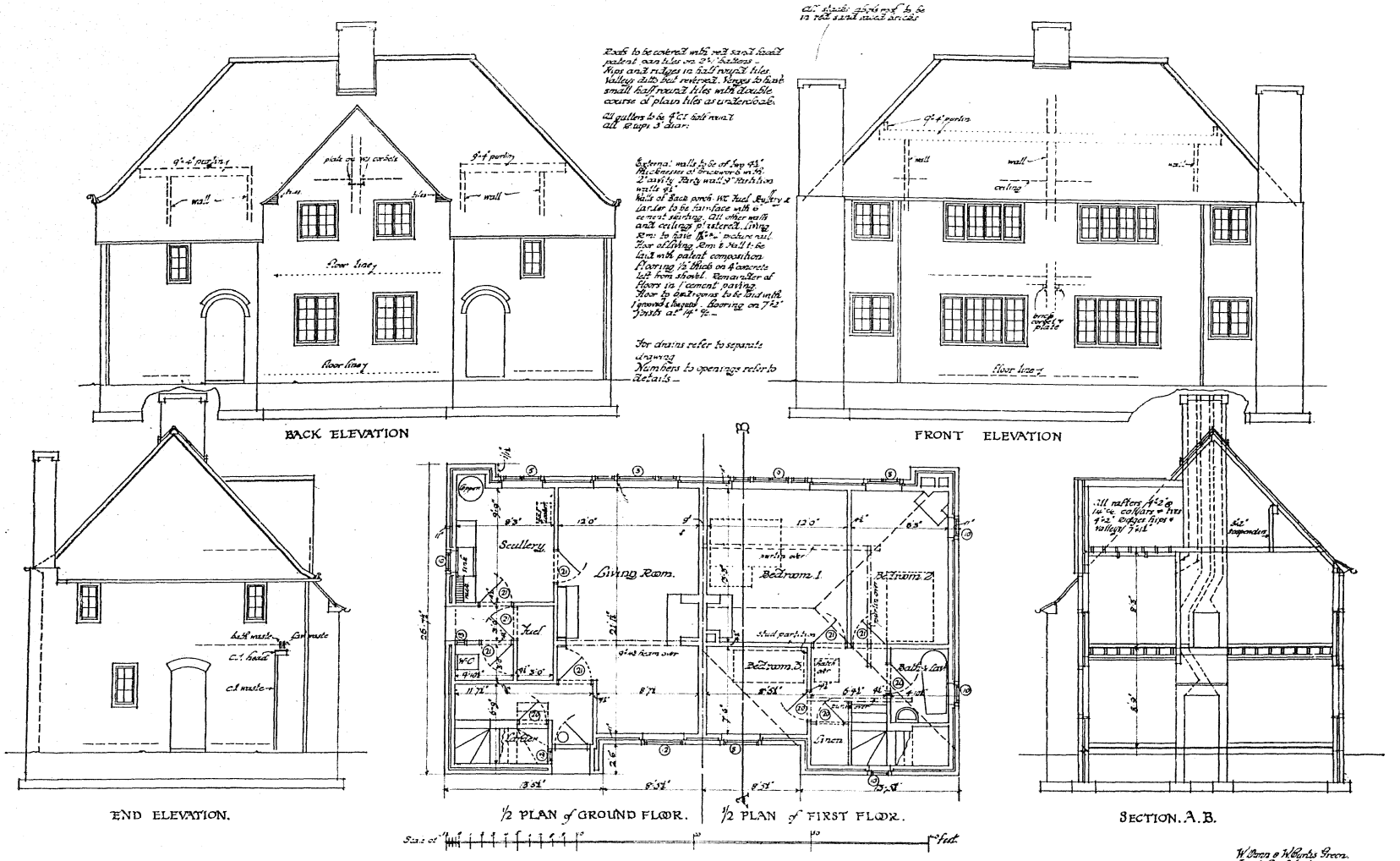
Winchester Municipal Scheme.

W. DUNN, F.R.I.B.A., and W. CURTIS GREEN, A.R.A., F.R.I.B.A., Joint Architects.

PLATE LXXIV.

Winchester Municipal Scheme.

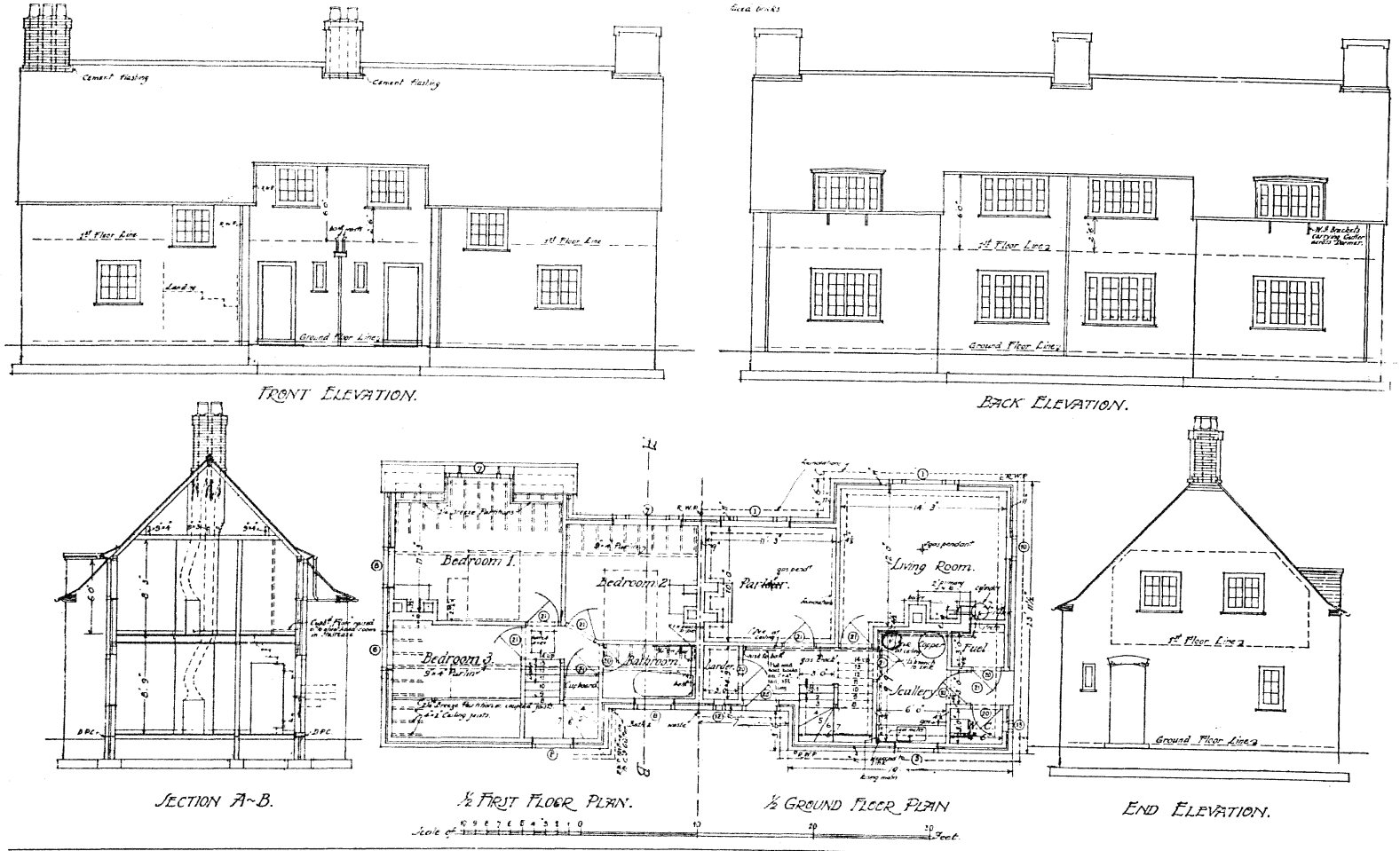
W. DUNN, F.R.I.B.A., and W. CURTIS GREEN, A.R.A., F.R.I.B.A., Joint Architects.



CITY OF WINCHESTER ~ HOUSING SCHEME ~ COTTAGES Nº 6 - TYPE A-N -

W. Dunn & W. Curtis Green.
Joint Architects
35 Lincolns Inn Fields
London W.C.2
May 1919
Sheet Nº 10

W. DUNN, F.R.I.B.A., and W. CURTIS GREEN, A.R.A., F.R.I.B.A., Joint Architects.



FRONT ELEVATION.

BACK ELEVATION.

SECTION A~B.

½ FIRST FLOOR PLAN.

½ GROUND FLOOR PLAN

END ELEVATION.

CITY OF WINCHESTER HOUSING SCHEME

COTTAGES No 3 ~ TYPE B N. REVISED

N. Dunn & W. Curtis Green. Joint Architects. 35 Lincolns Inn Fields. Aug 19th 1919.

SHEET No 62

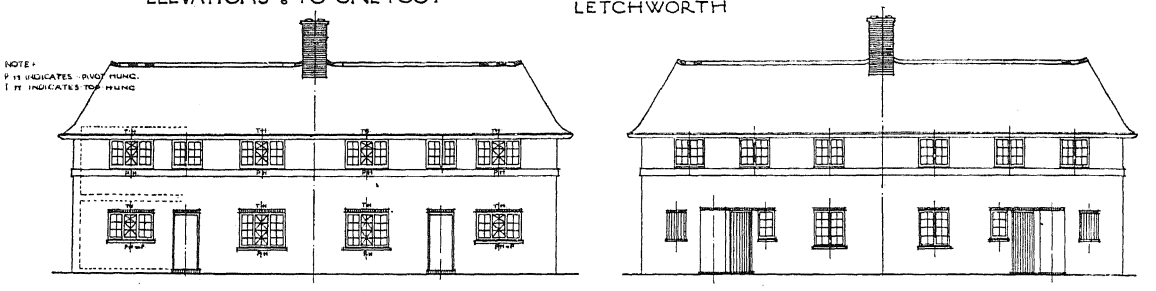
W. DUNN, F.R.I.B.A., and W. CURTIS GREEN, A.R.A., F.R.I.B.A., Joint Architects.

THE JOSEPH ROWNTREE VILLAGE TRUST

TYPE C 10 NON PARLOUR SOUTH ASPECT COTTAGE

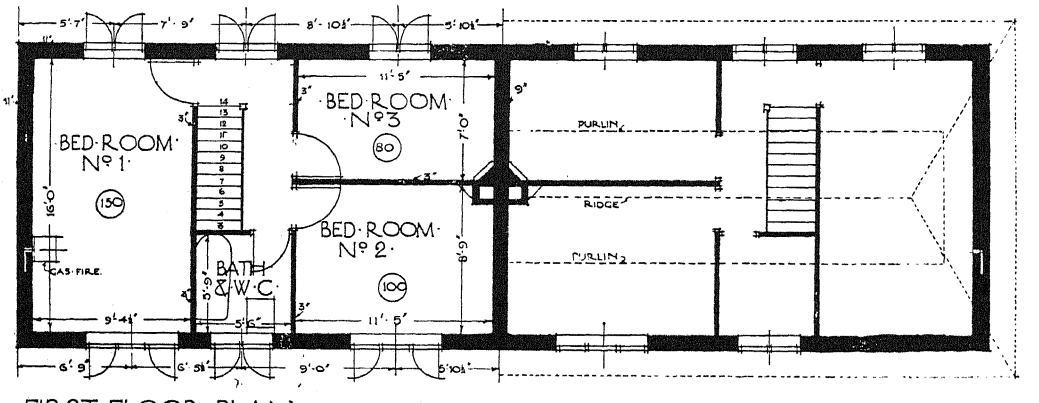
SCALES PLANS ¼" TO ONE FOOT
ELEVATIONS ⅛ TO ONE FOOT

BARRY PARKER
F R I B A
LETCHWORTH

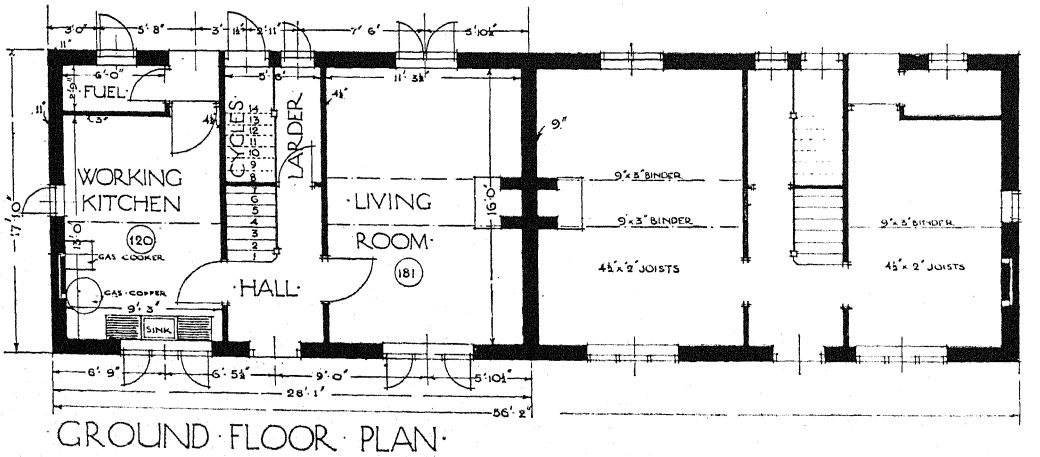


FRONT ELEVATION

BACK ELEVATION



FIRST FLOOR PLAN



GROUND FLOOR PLAN

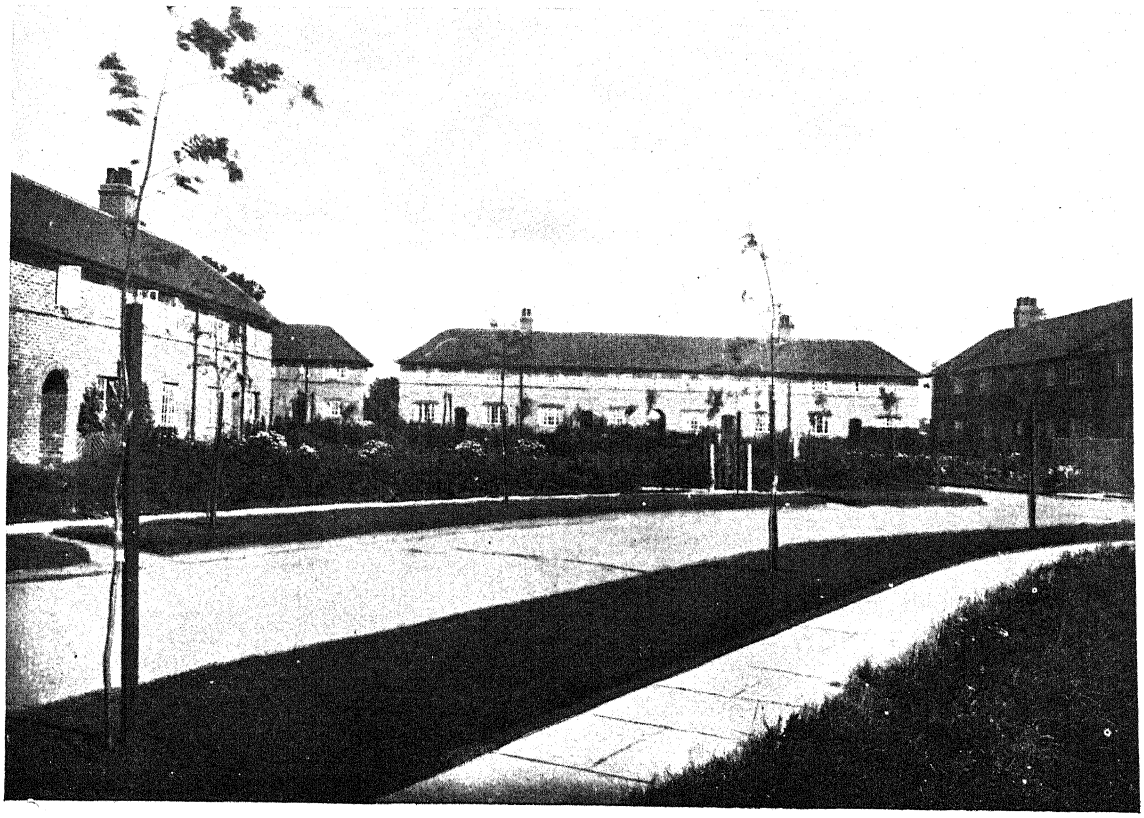
BARRY PARKER, F.R.I.B.A., M.T.P.I., Architect.

EARSWICK, YORK

PLATE LXXVIII.



PLATE LXXIX.

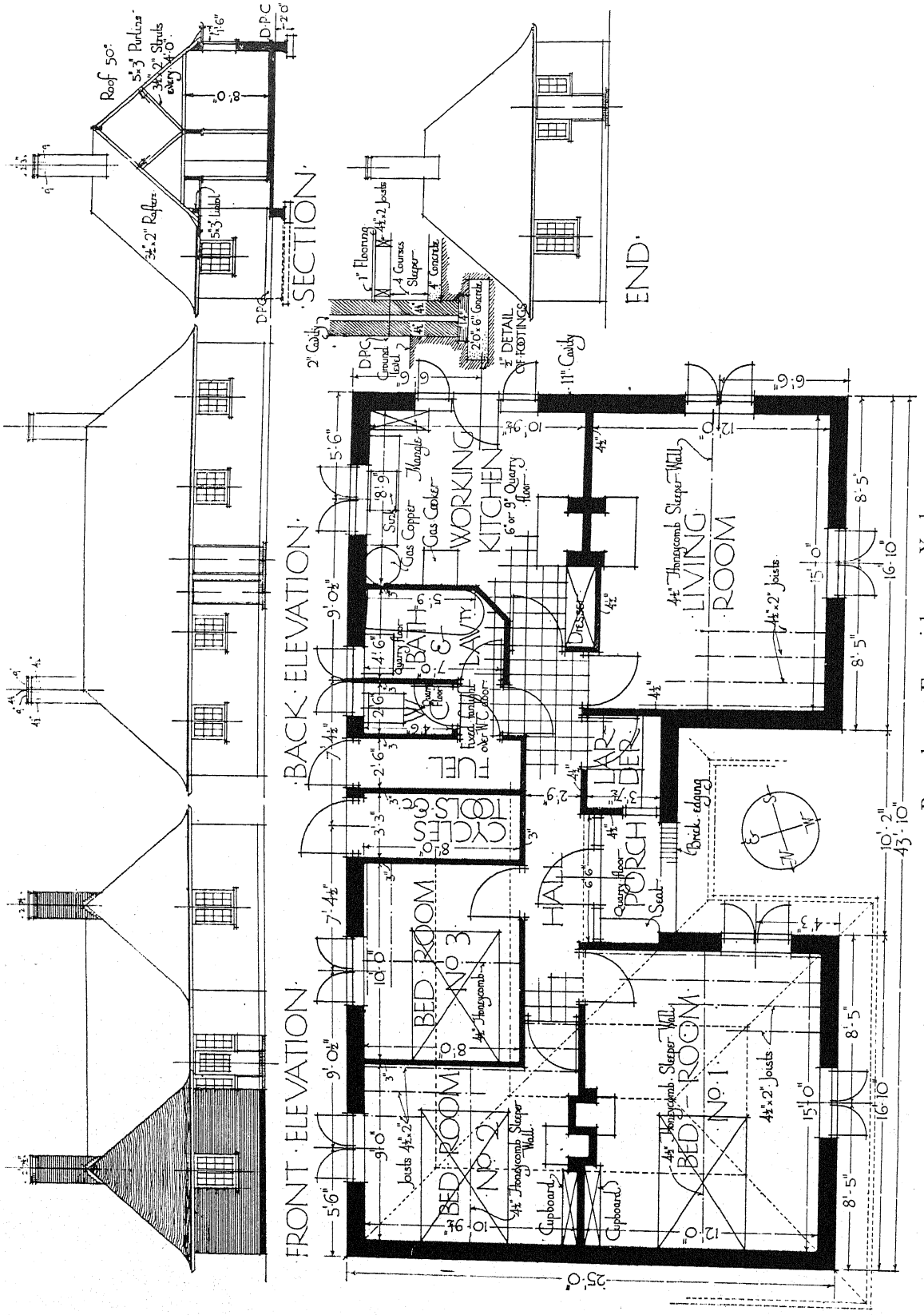


Joseph Rowntree Village Trust.

BARRY PARKER, F.R.I.B.A., M.T.P.I., Architect.

EARSWICK, YORK

PLATE LXXX.



Bungalow at Earswick, near York.

See opposite.

BARRY PARKER, F.R.I.B.A., M.T.P.I., Architect.

EARSWICK, YORK

PLATE LXXXI.



PLATE LXXXII.



Bungalows for the Joseph Rowntree Village Trust.
See plan opposite.

BARRY PARKER, F.R.I.B.A., M.T.P.I., Architect.

PLATE LXXXIII.



A Pair of Non-parlour Cottages.

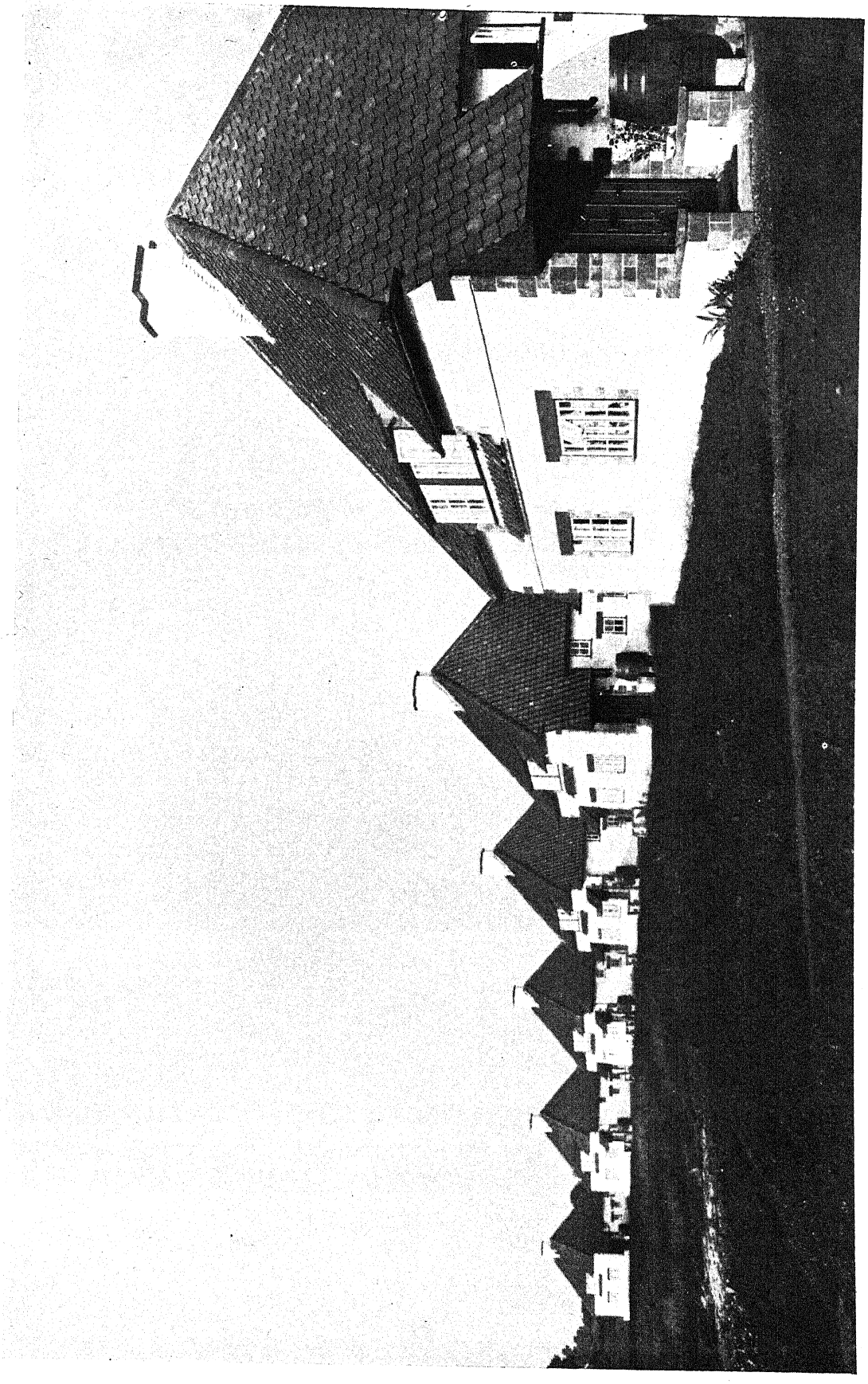
PLATE LXXXIV.



Hook Norton Scheme.
For the Rural District Council.

T. LAWRENCE DALE, F.R.I.B.A., Architect.

PLATE LXXXV.



Adderbury Scheme.
For the Rural District Council.
T. LAWRENCE DALE, F.R.I.B.A., Architect.

PLATE LXXXVI.



Hook Norton Scheme.

PLATE LXXXVII.



Milcomb Scheme.
For the Rural District Council.

T. LAWRENCE DALE, F.R.I.B.A., Architect.

PLATE LXXXVIII.



South Newington Scheme.

PLATE LXXXIX.



Mollington Scheme.
For the Rural District Council.

T. LAWRENCE DALE, F.R.I.B.A., Architect.

SWANPOOL, LINCOLN

PLATE XC.

General Lay-out Plan of the Estate.
Part of the S.W. end of the site only has been developed.
THOMPSON, HENNELL and JAMES, Architects.



A Public Utility Society Scheme.
View on the main road.

A. J. THOMPSON, F.R.I.B.A., C. MURRAY HENNELL, F.S.I., and C. H. JAMES, A.R.I.B.A., Architects.

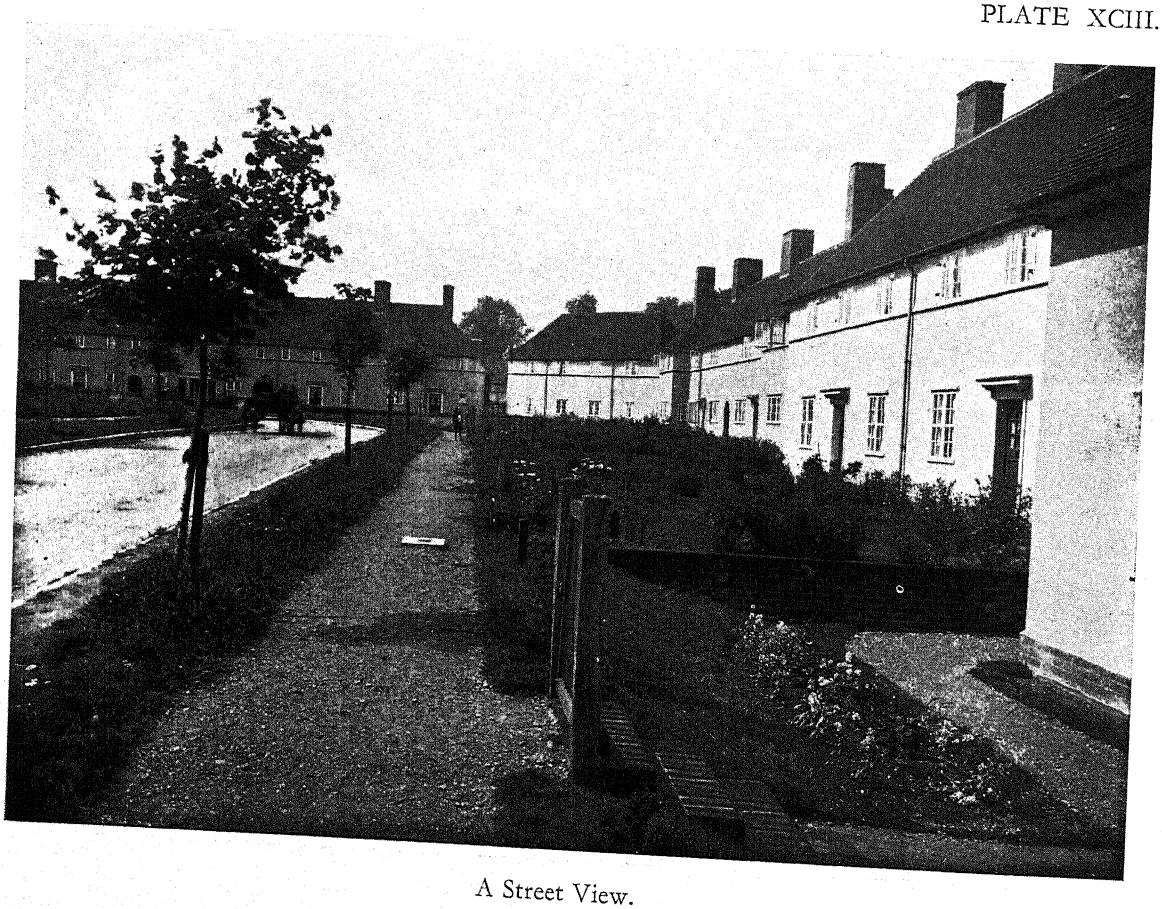
SWANPOOL, LINCOLN

PLATE XCII.



The Main Entrance to the Estate.

PLATE XCIII.



A Street View.

THOMPSON, HENNELL and JAMES, Architects.

SWANPOOL, LINCOLN

PLATE XCIV.

Group at Main Entrance to Estate.

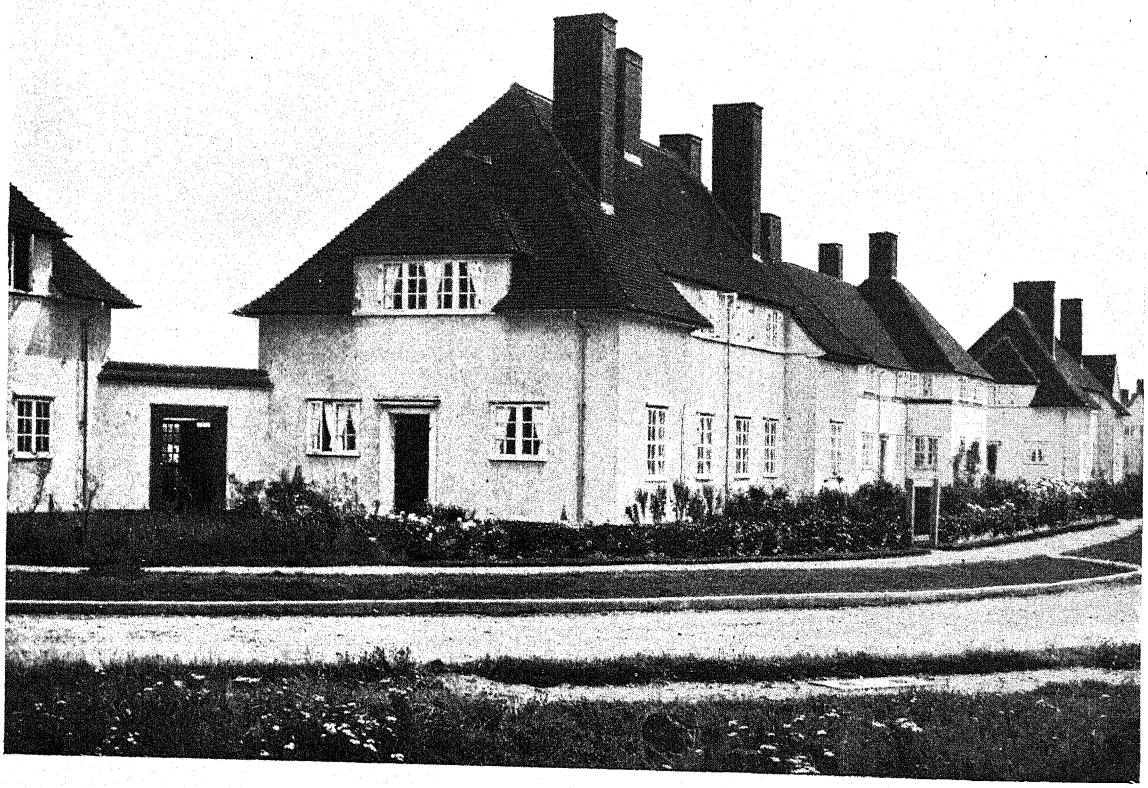
THOMPSON, HENNELL and JAMES, Architects.

SWANPOOL, LINCOLN

PLATE XCV.



PLATE XCVI.



Two Similar Corner Treatments.

THOMPSON, HENNELL and JAMES, Architects.

SWANPOOL, LINCOLN

PLATE XCVII.

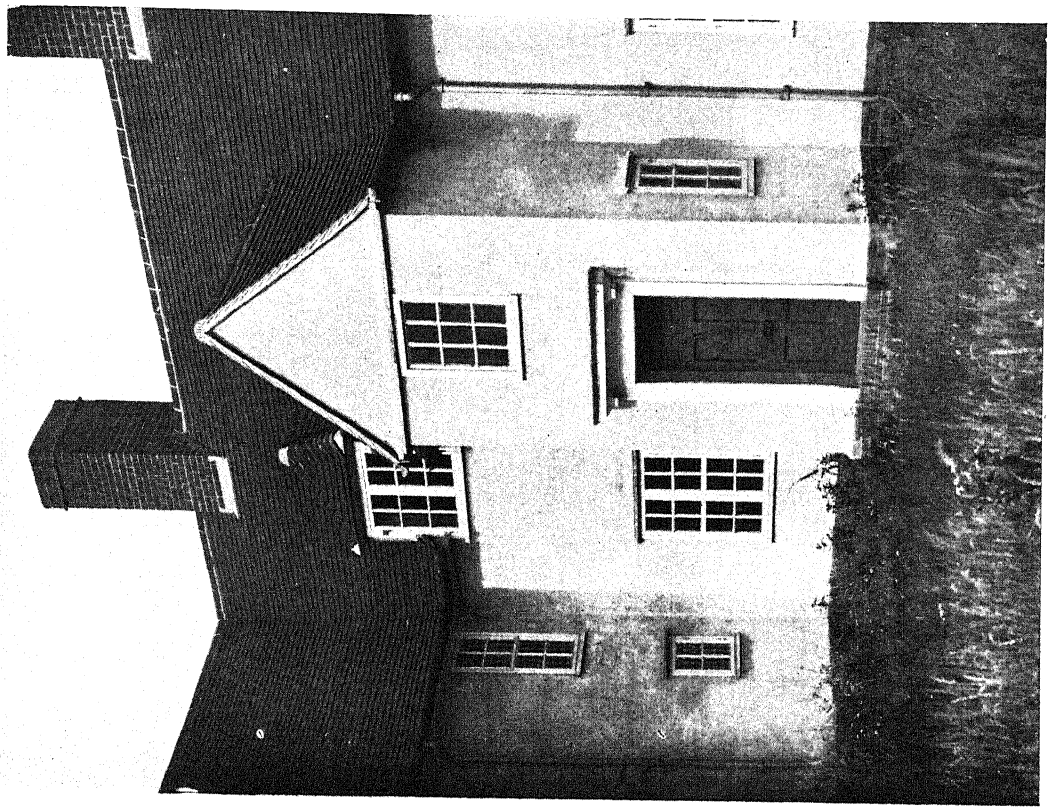
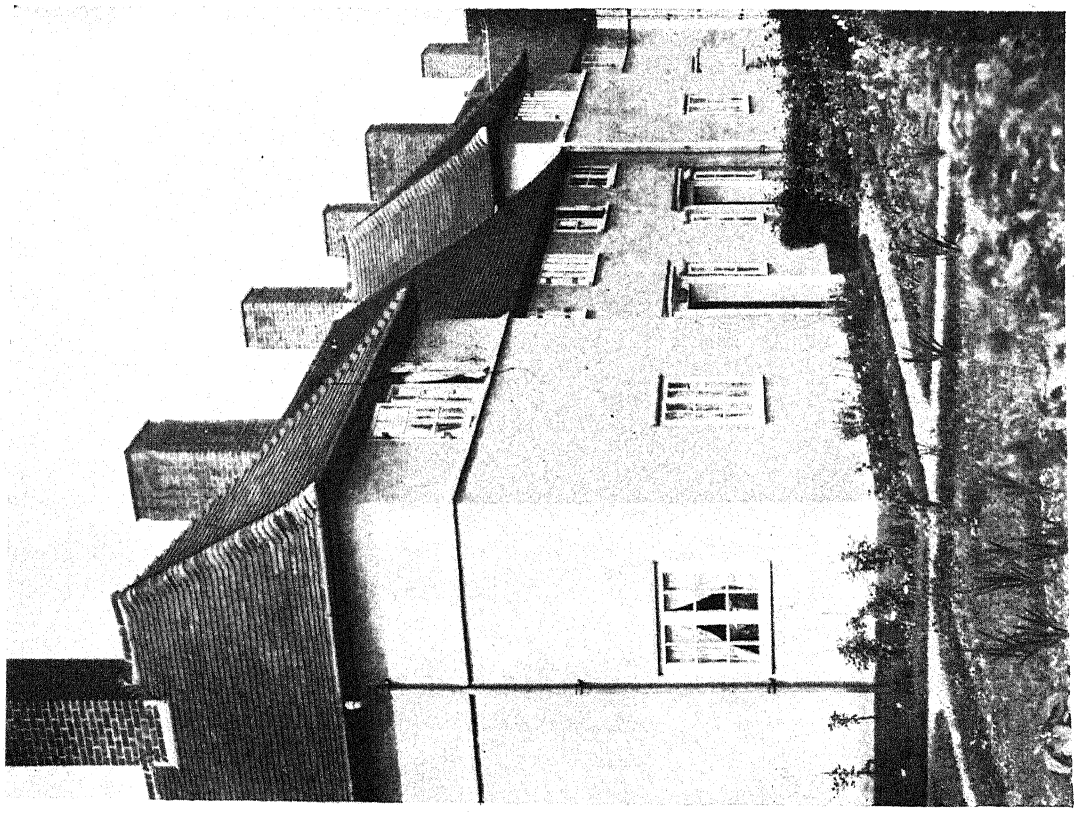


PLATE XCVIII.



THOMPSON, HENNELL and JAMES, Architects.

SWANPOOL, LINCOLN

PLATE XCIX.

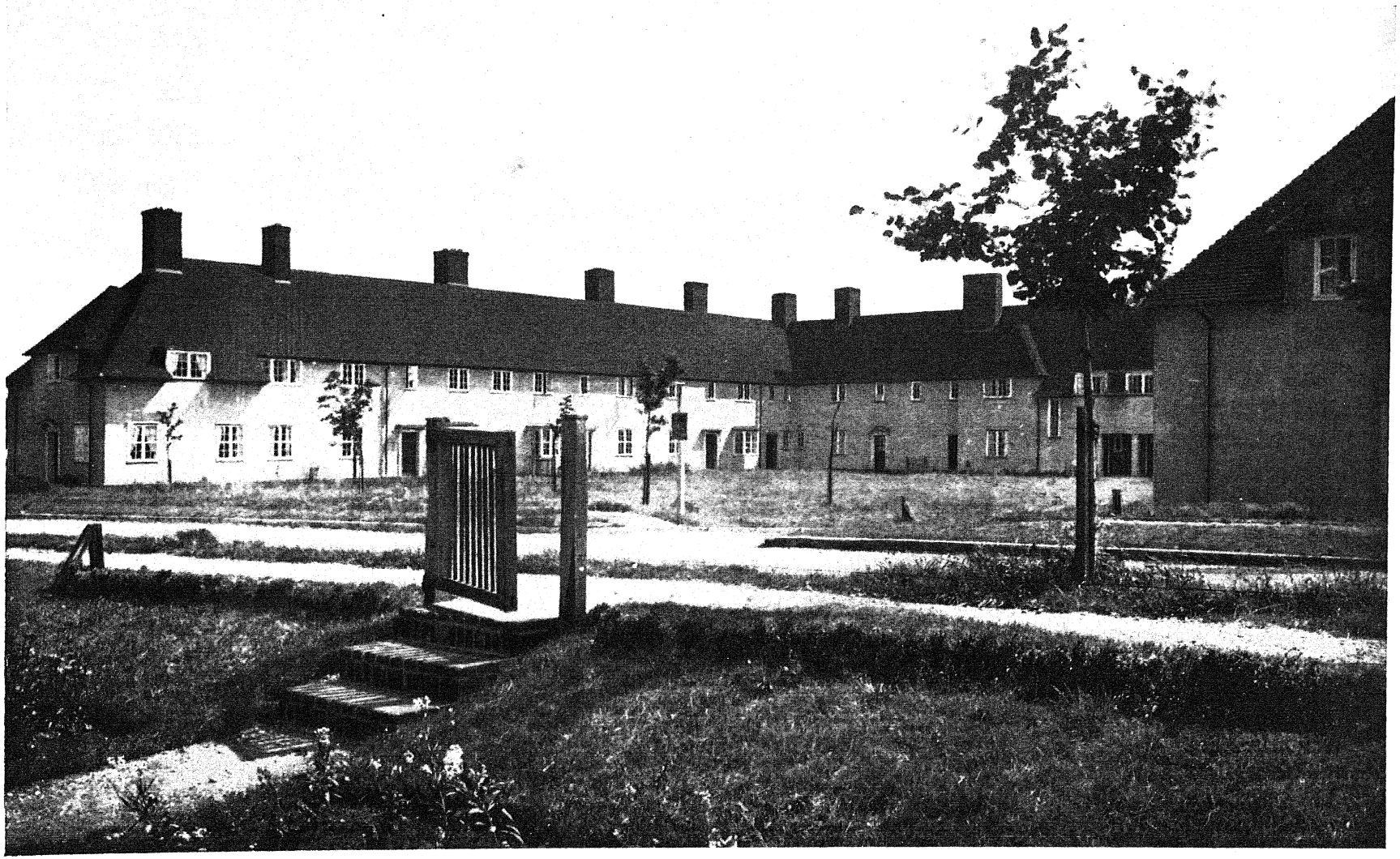


A Group of Six.

PLATE C.



THOMPSON, HENNELL and JAMES, Architects.

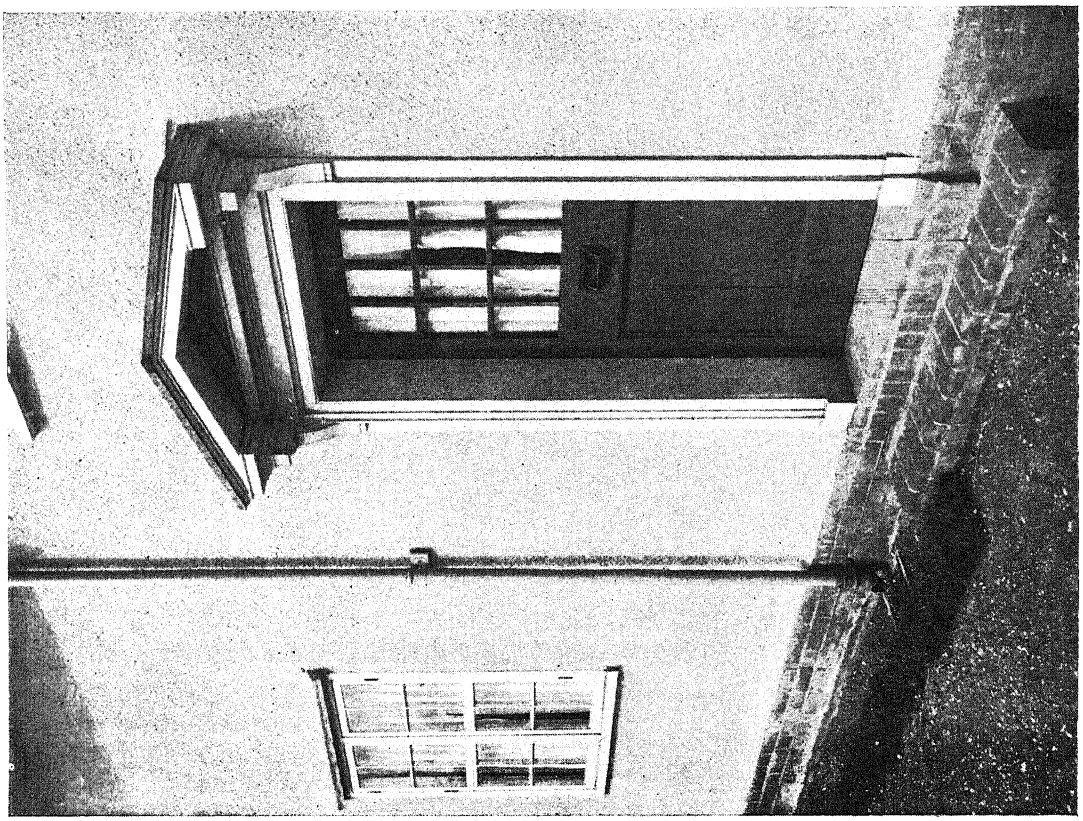


A Quadrangle of Sixteen Cottages under One Roof.

THOMPSON, HENNELL and JAMES, Architects.

SWANPOOL, LINCOLN

PLATE CII.

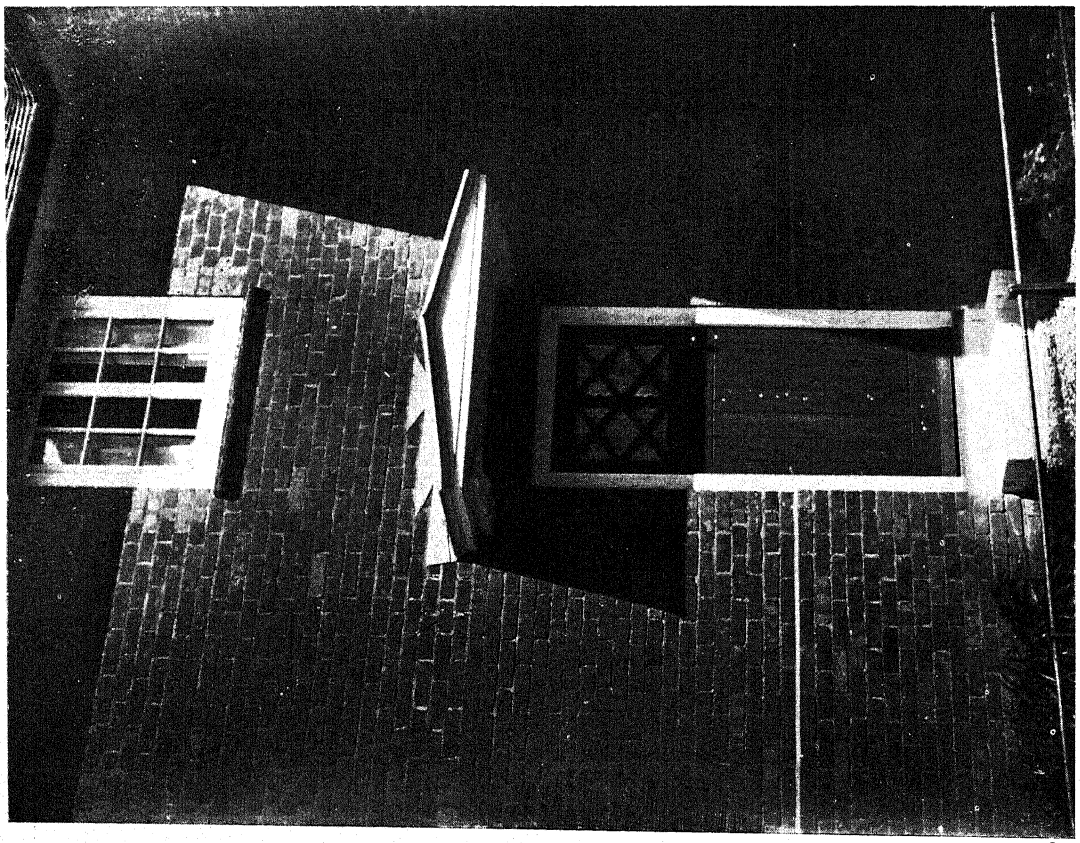


A Doorway.

THOMPSON, HENNELL and JAMES, Architects.

BUCKINGHAMSHIRE

PLATE CIII.



Doorway of Cottages Opposite.

H. G. CHERRY, Architect.

PLATE CIV.



PLATE CV.



Estate Cottages for Sir John Ramsden.

H. G. CHERRY, Architect.

PLATE CVI.

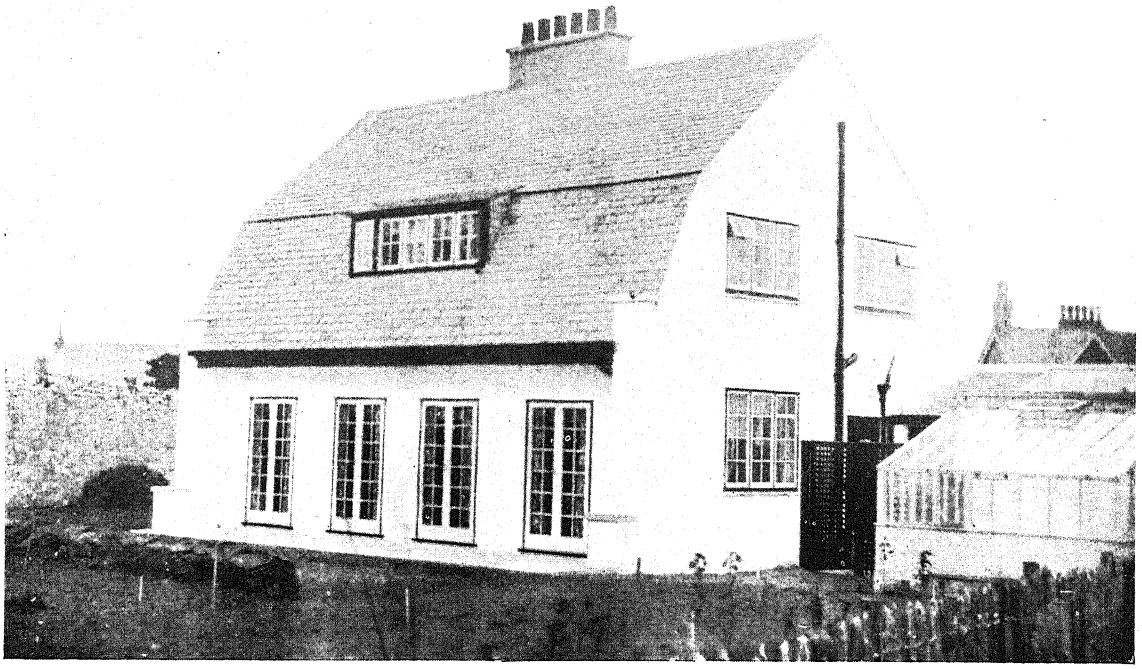


PLATE CVII.



An Estate Cottage, Prestatyn.

J. M. EASTON, A.R.I.B.A., and HOWARD M. ROBERTSON, S.A.D.G., Architects.

PLATE CVIII.

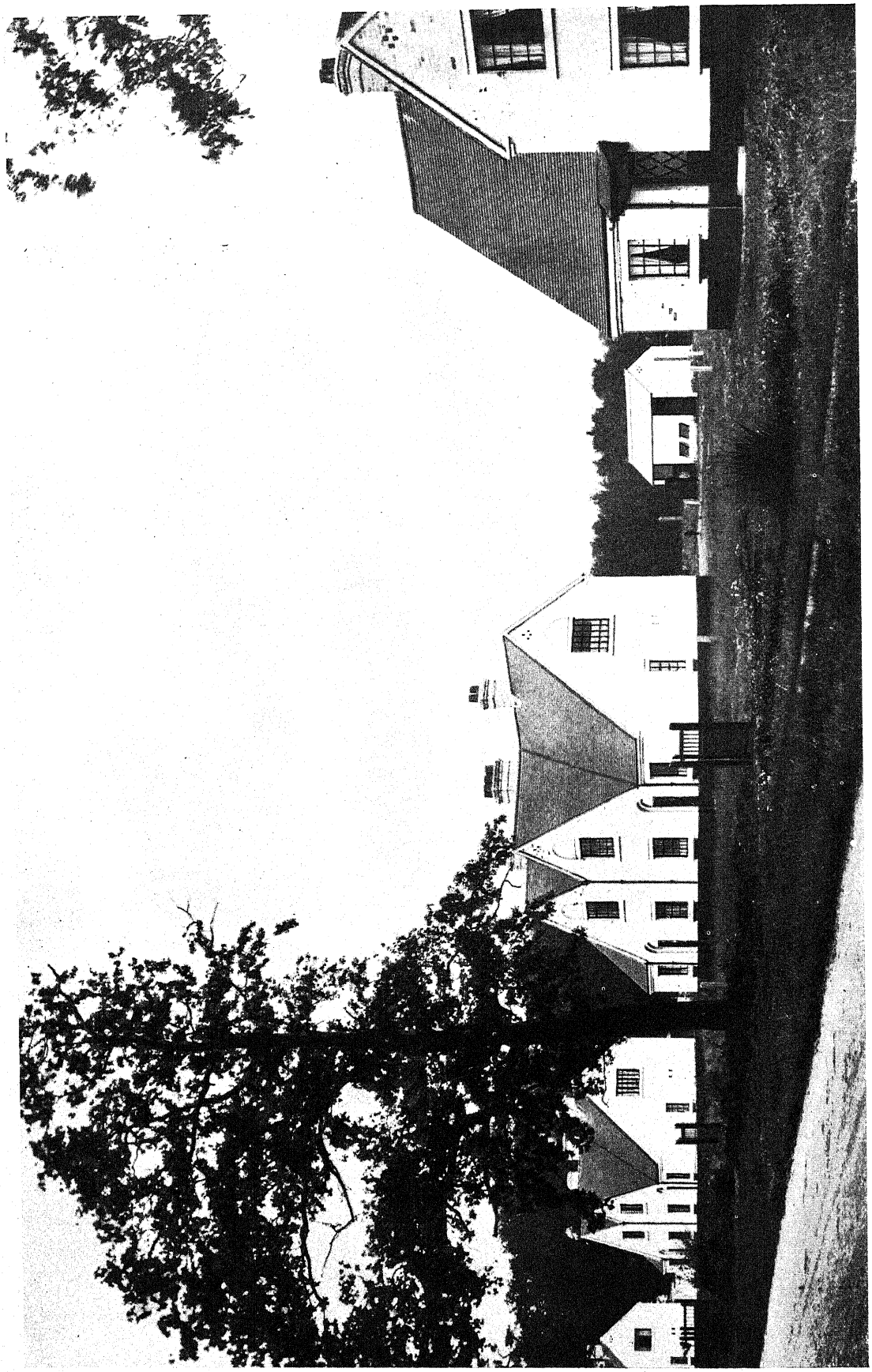


PLATE CIX.



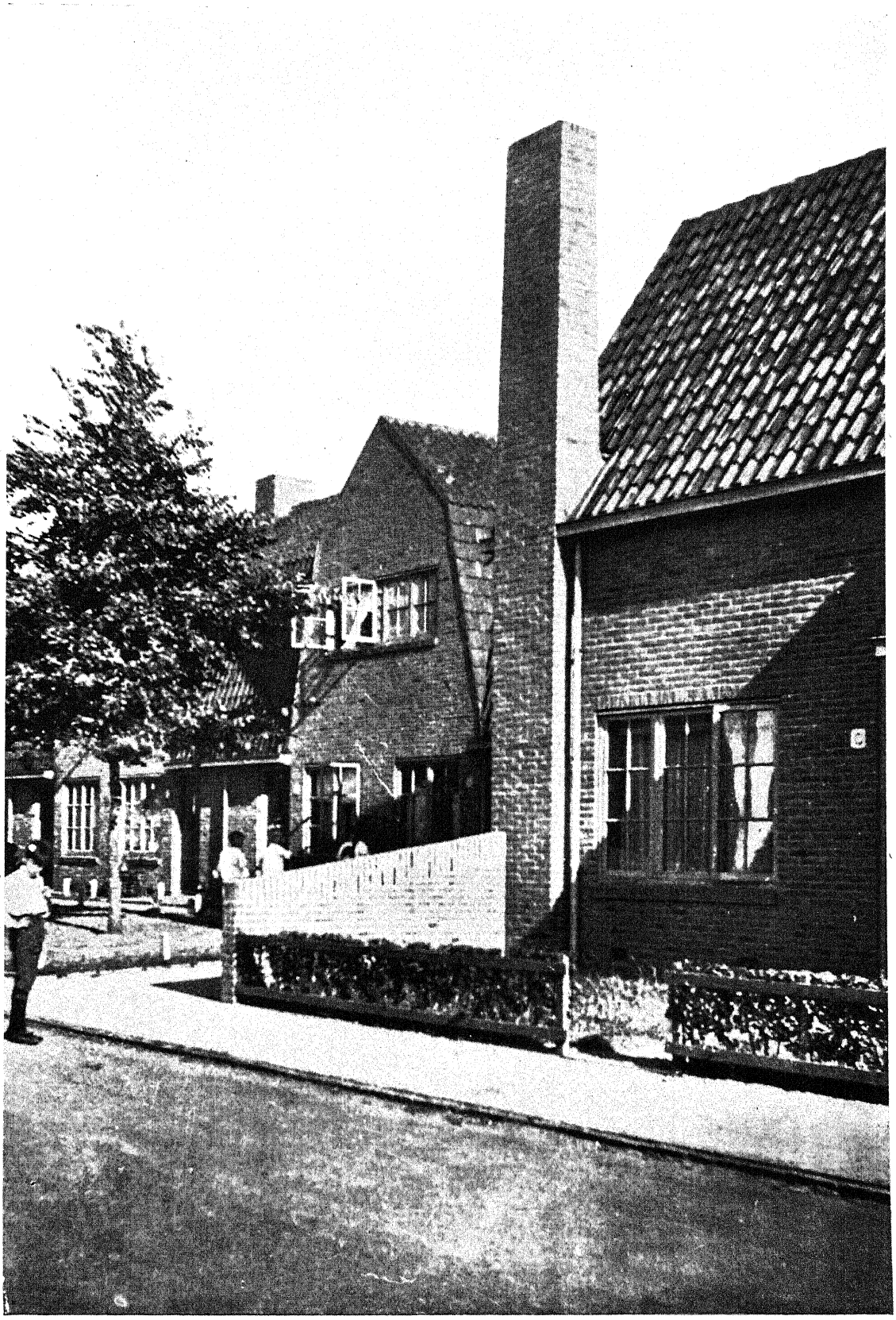
Small Holdings, Sutton Bridge.

HUGH P. G. MAULE, F.R.I.B.A., Chief Architect.



Small Holdings, Rawcliffe, West Riding.

HUGH P G. MAULE, F.R.I.B.A., Chief Architect.



Garden Suburb at Hilversum.

W. DUDOK, Architect.

PLATE CXII.

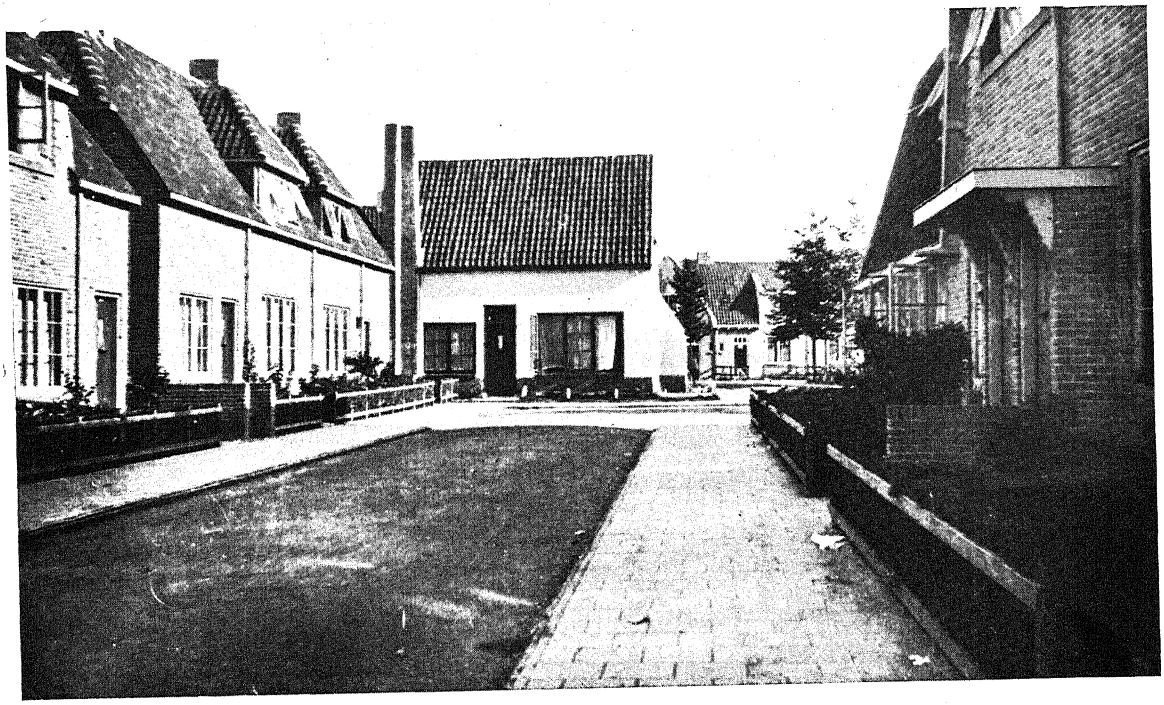
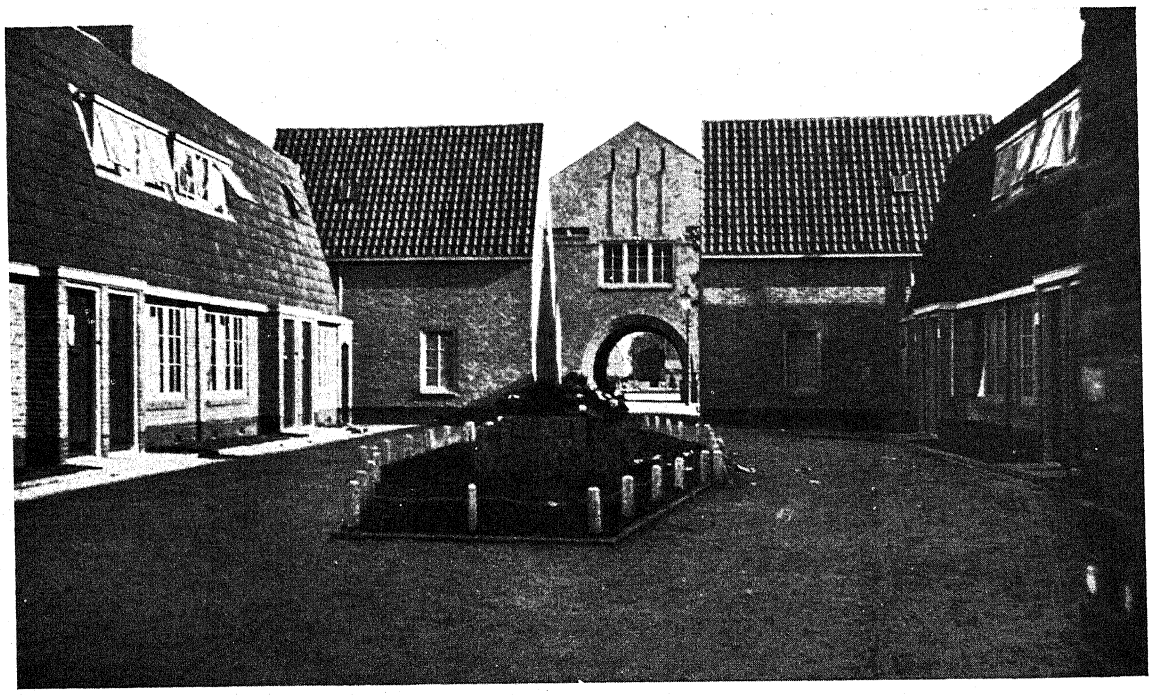


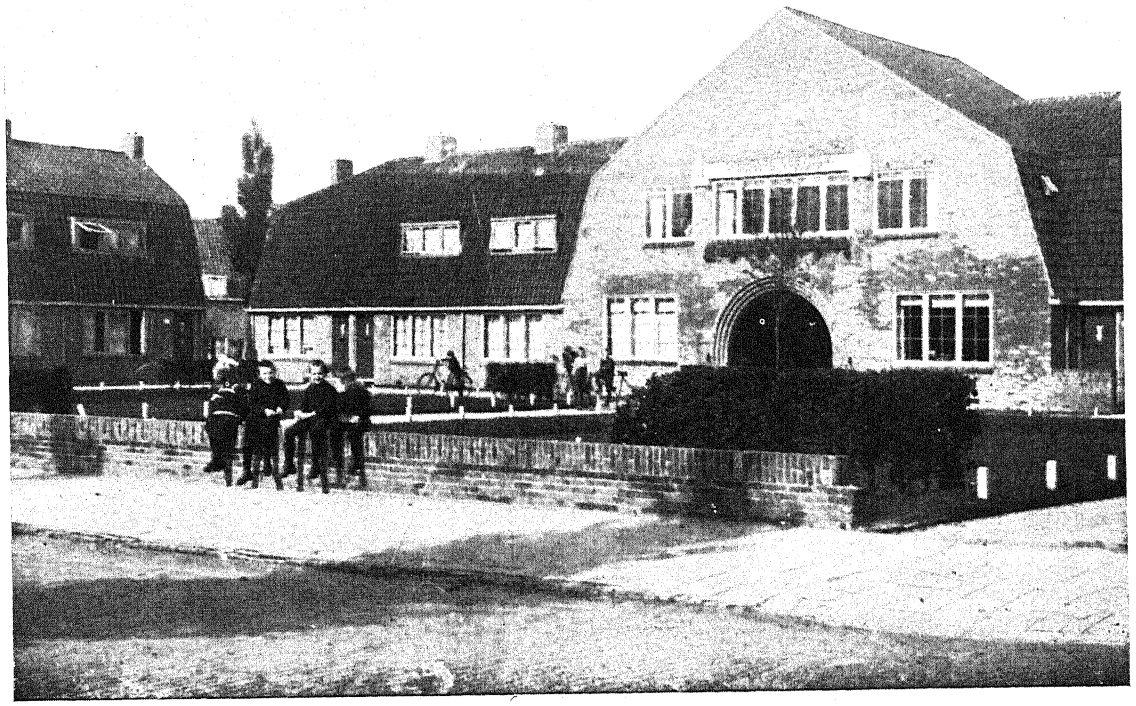
PLATE CXIII.



Hilversum.

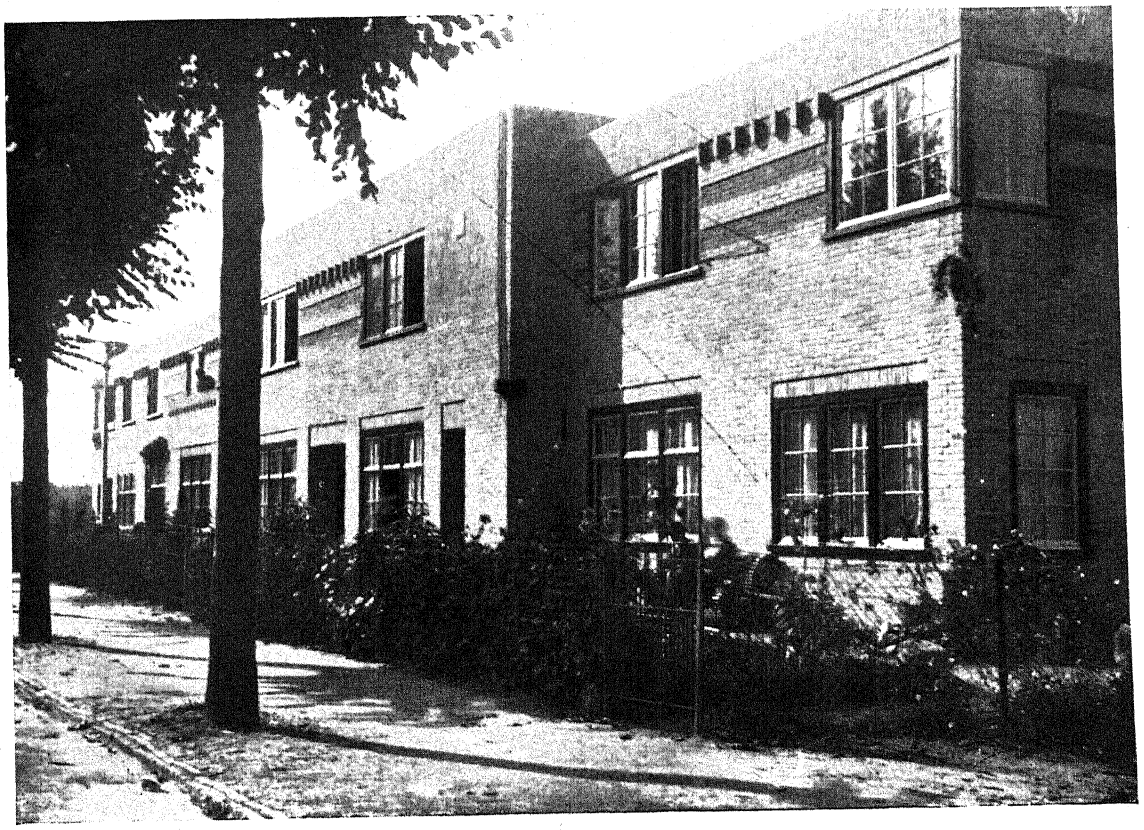
W. DUDOK, Architect.

PLATE CXIV.



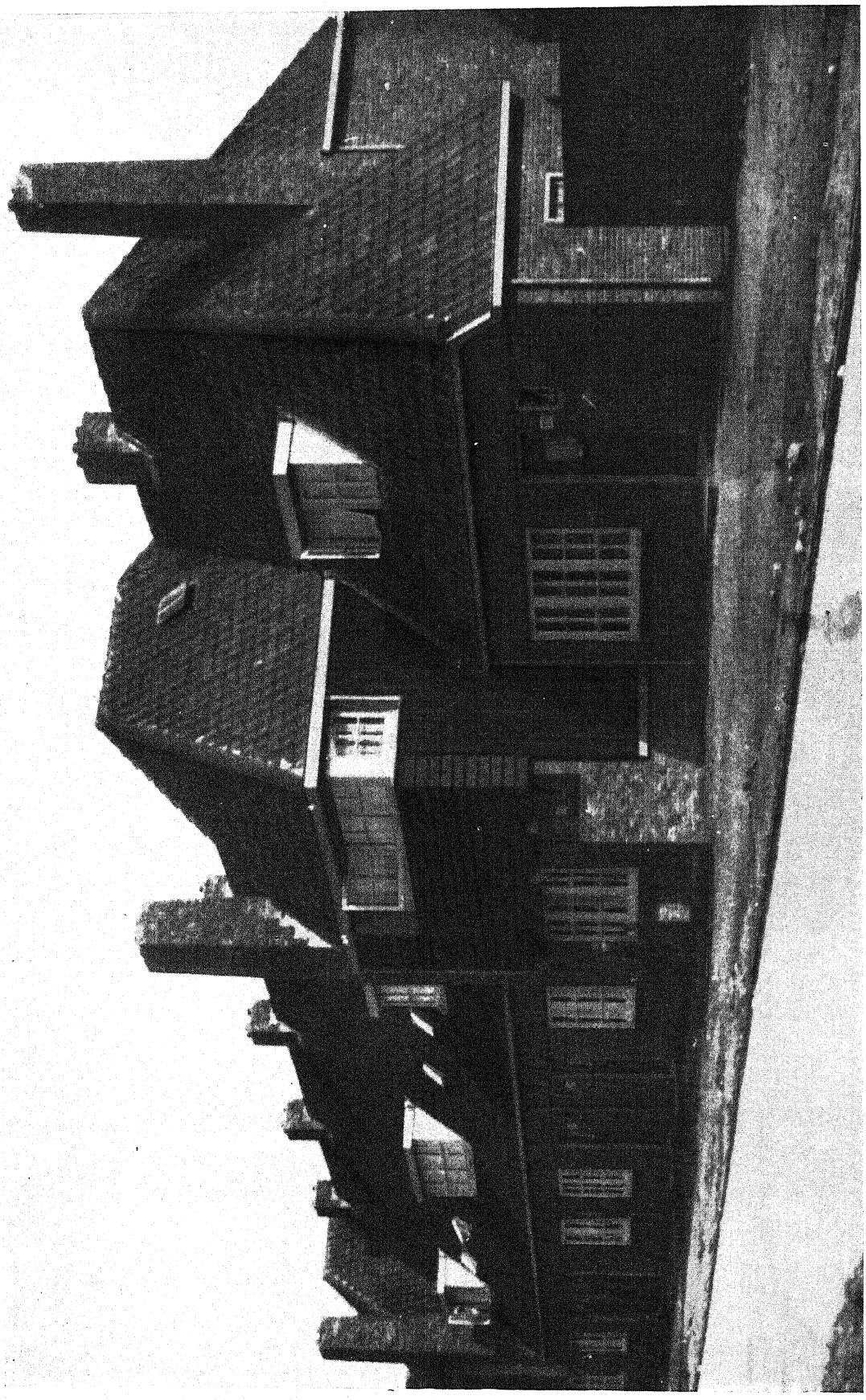
Hilversum. A quadrangle giving access to court shown on previous plate.

PLATE CXV.



Hilversum. Flat-roofed Houses.

W. DUDOK, Architect.



Hilversum.

W. DUDOK, *Architect.*

PLATE CXVII.

First Garden Suburb, Rotterdam.

GRANPRÉ, MOLIERE and KOK, Architects.

PLATE CXVIII.



A Small House in timber covered with plaster. From a Garden Suburb, near Stockholm.

CUST E. PETTERSSON, Architect.

PLATE CXX.



CUST E. PETTERSSON, Architect.

PLATE CXXI.



Scheme near Stockholm.
Timber covered with plaster of various tints.
G. WETTERLING, Architect.

PLATE CXXII.

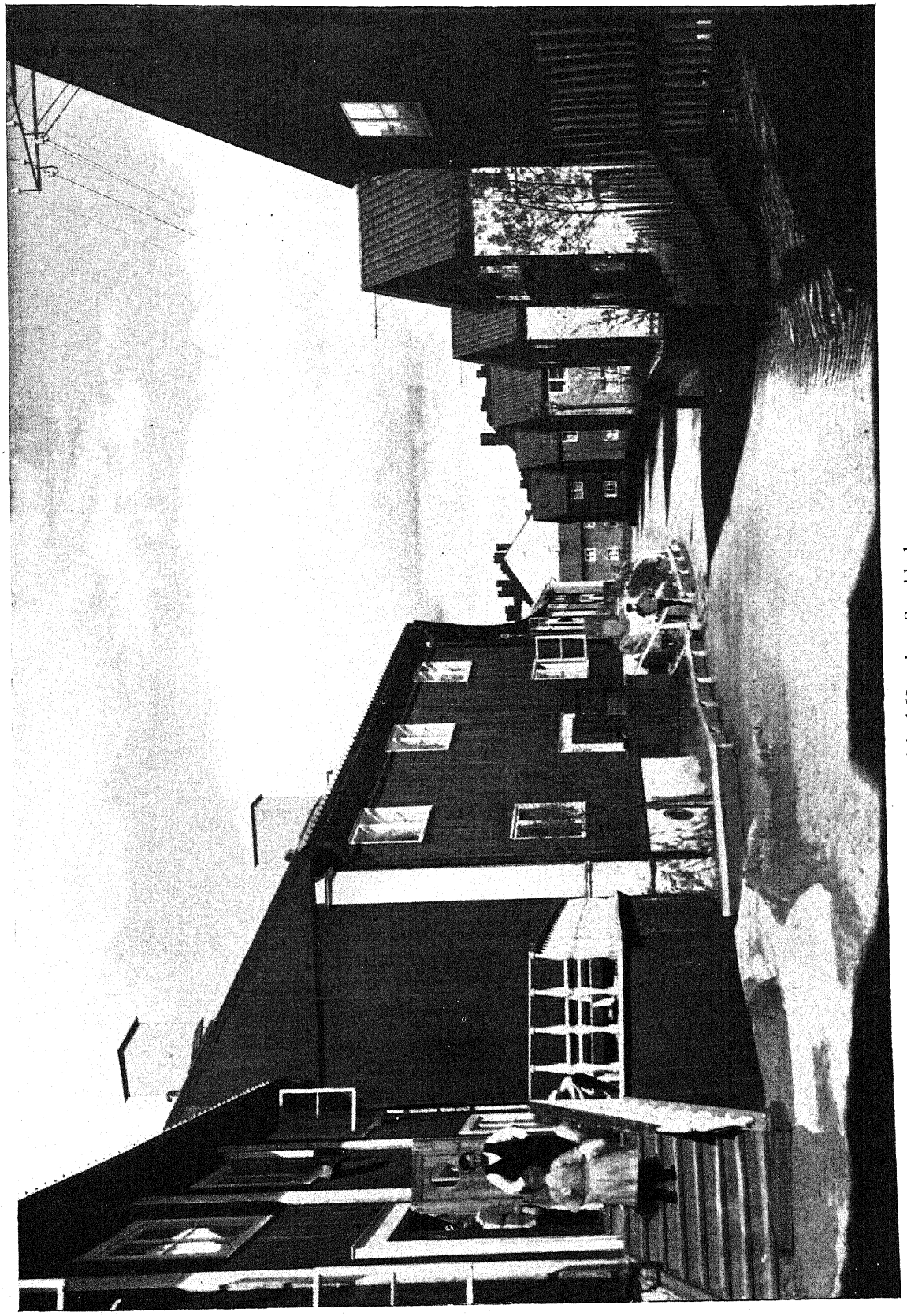


PLATE CXXIII.



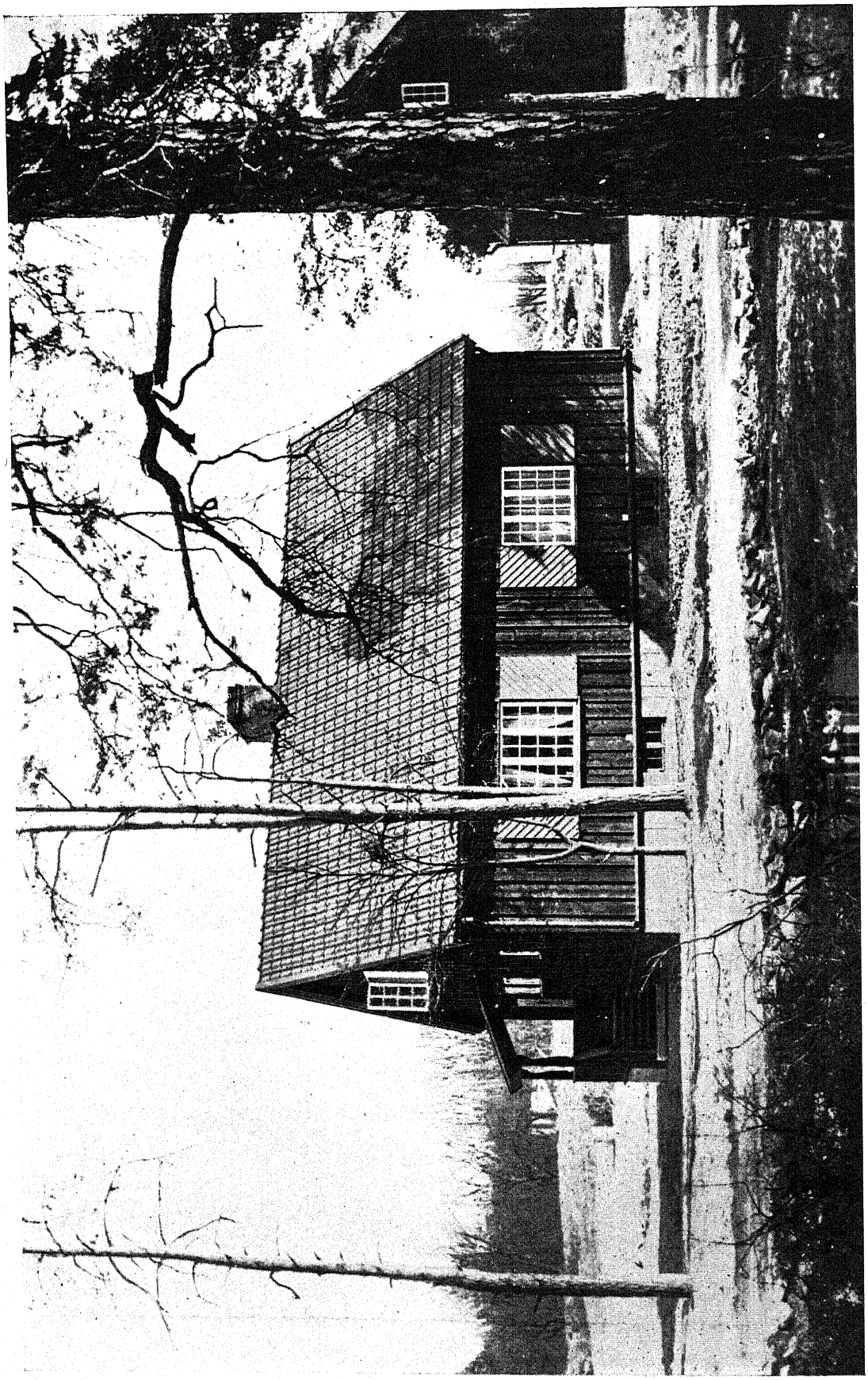
Municipal Housing, Stockholm.

PLATE CXXIV.



Municipal Housing, Stockholm.

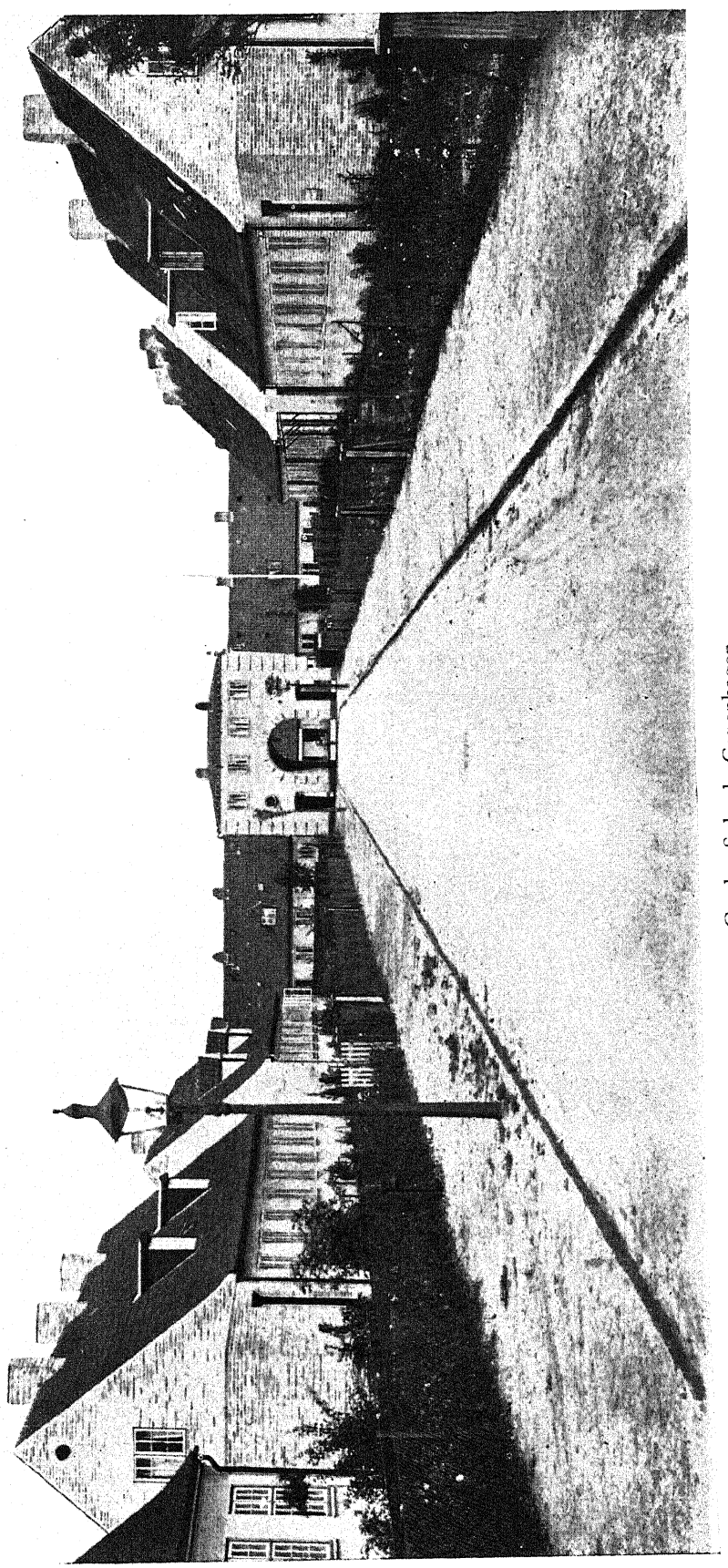
E. G. ASPLUND, Architect.



Small Timber House, in Development Scheme, near Stockholm.

G. LARSSON, Architect.

PLATE CXXVI.



Garden Suburb, Copenhagen.

PLATE CXXVII.



PLATE CXXVIII.



Garden Suburb, Copenhagen.

PLATE CXXIX.



PLATE CXXX.



Garden Suburb, Copenhagen.

PLATE CXXXI.

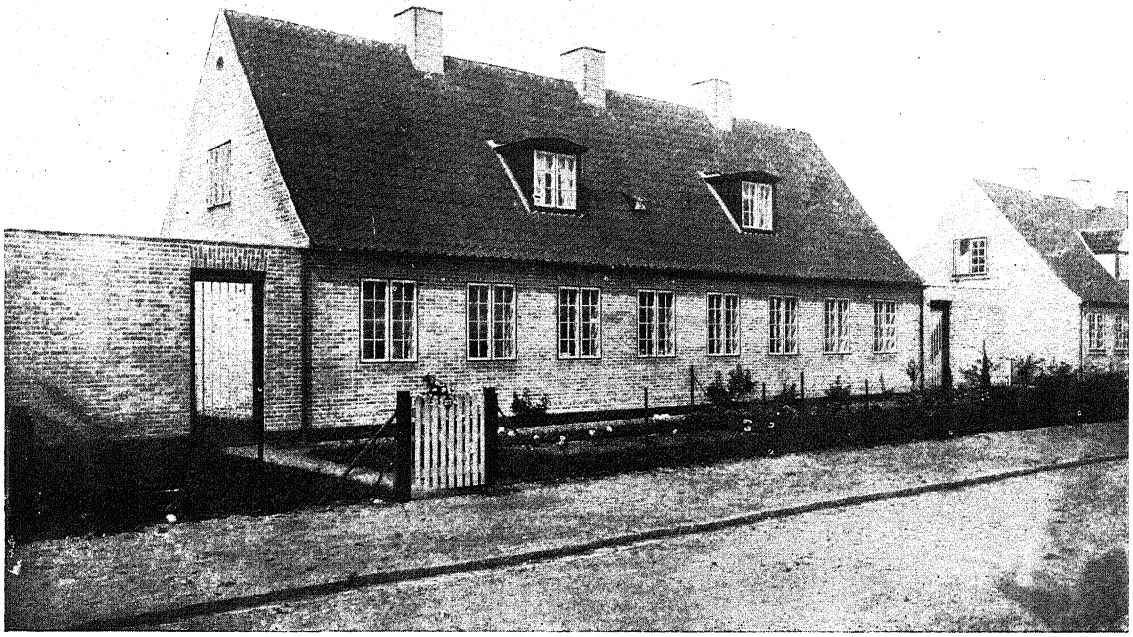


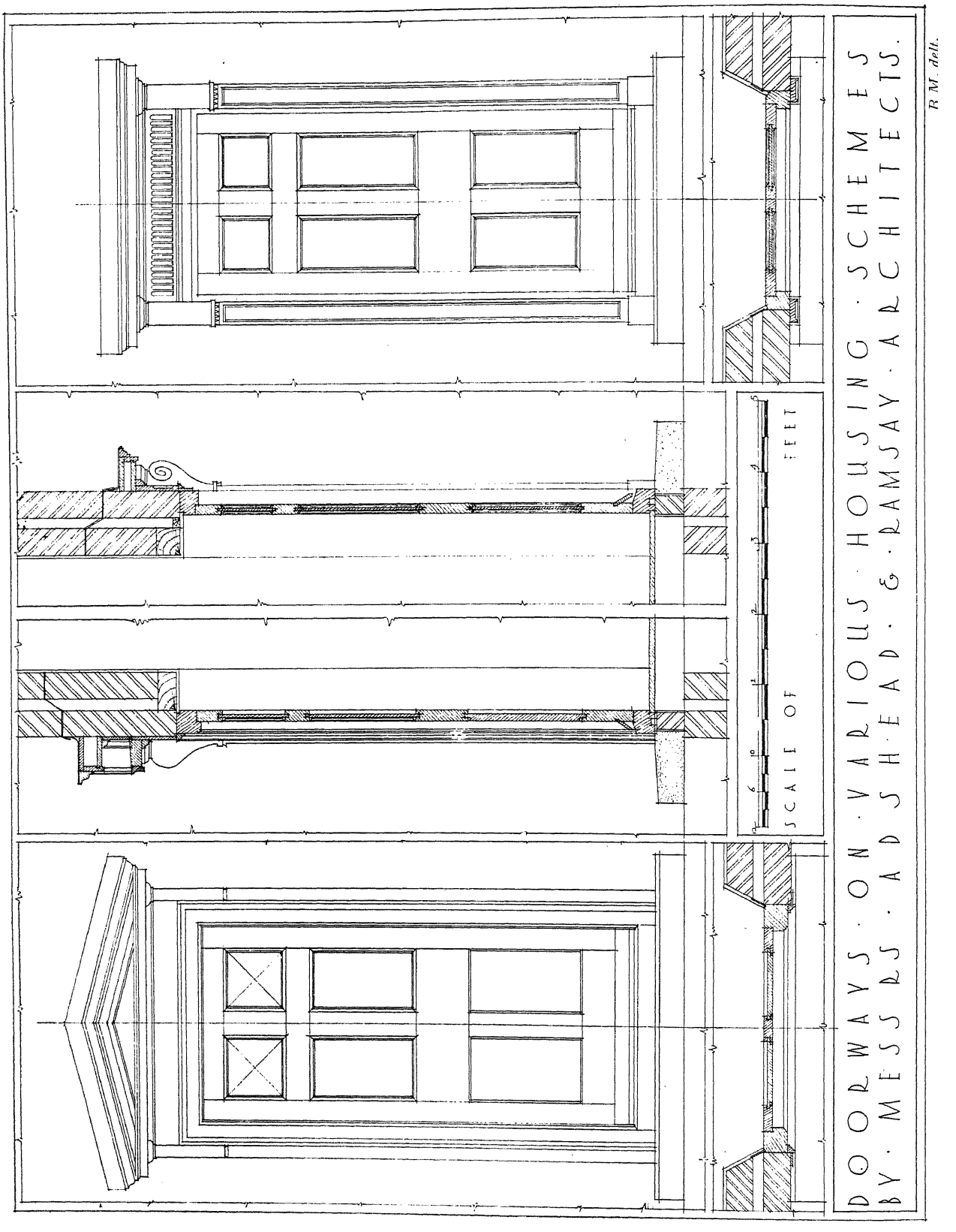
PLATE CXXXII.



Garden Suburb, Copenhagen.

DETAIL DRAWINGS

PLATE CXXXIII.



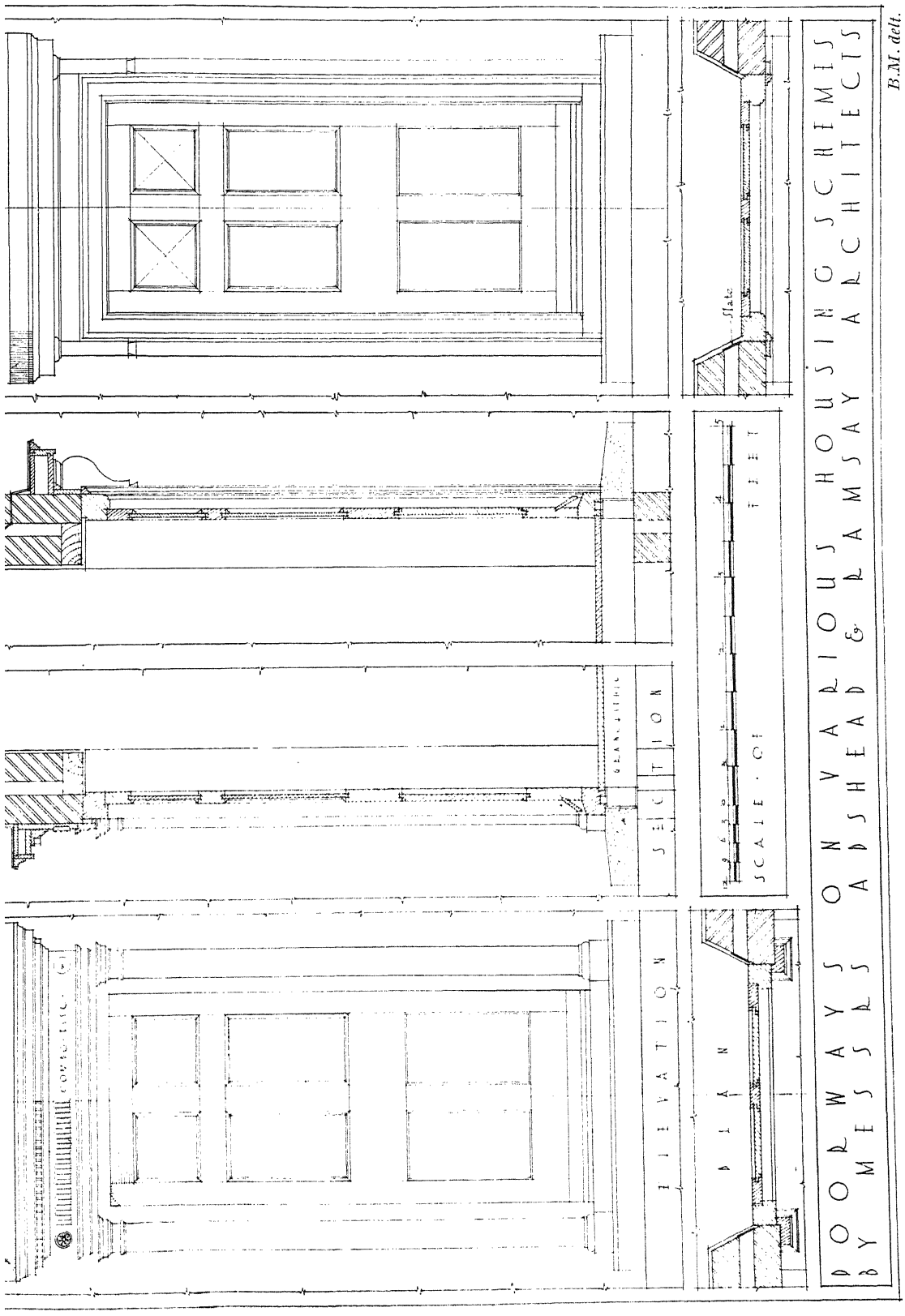
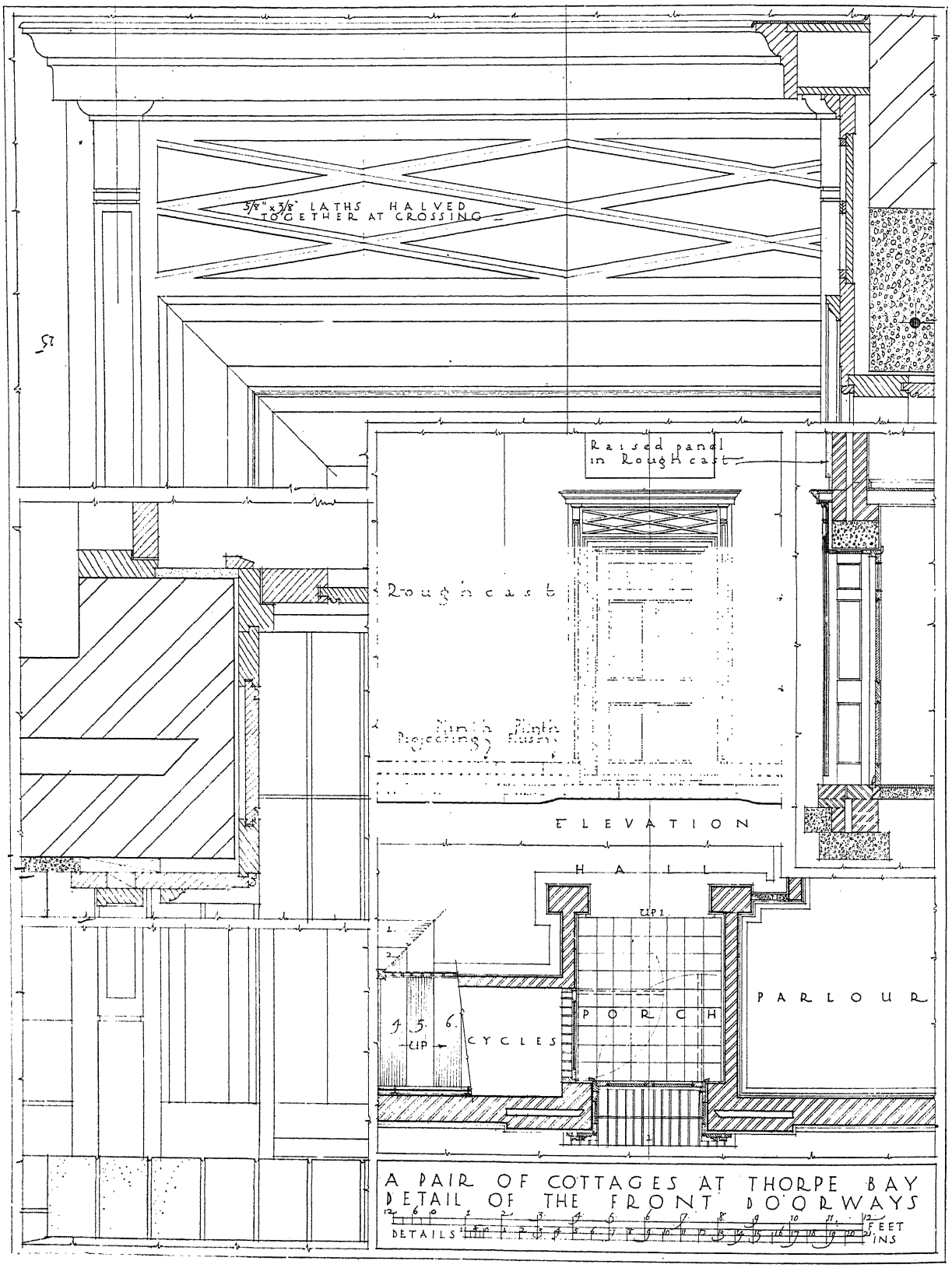
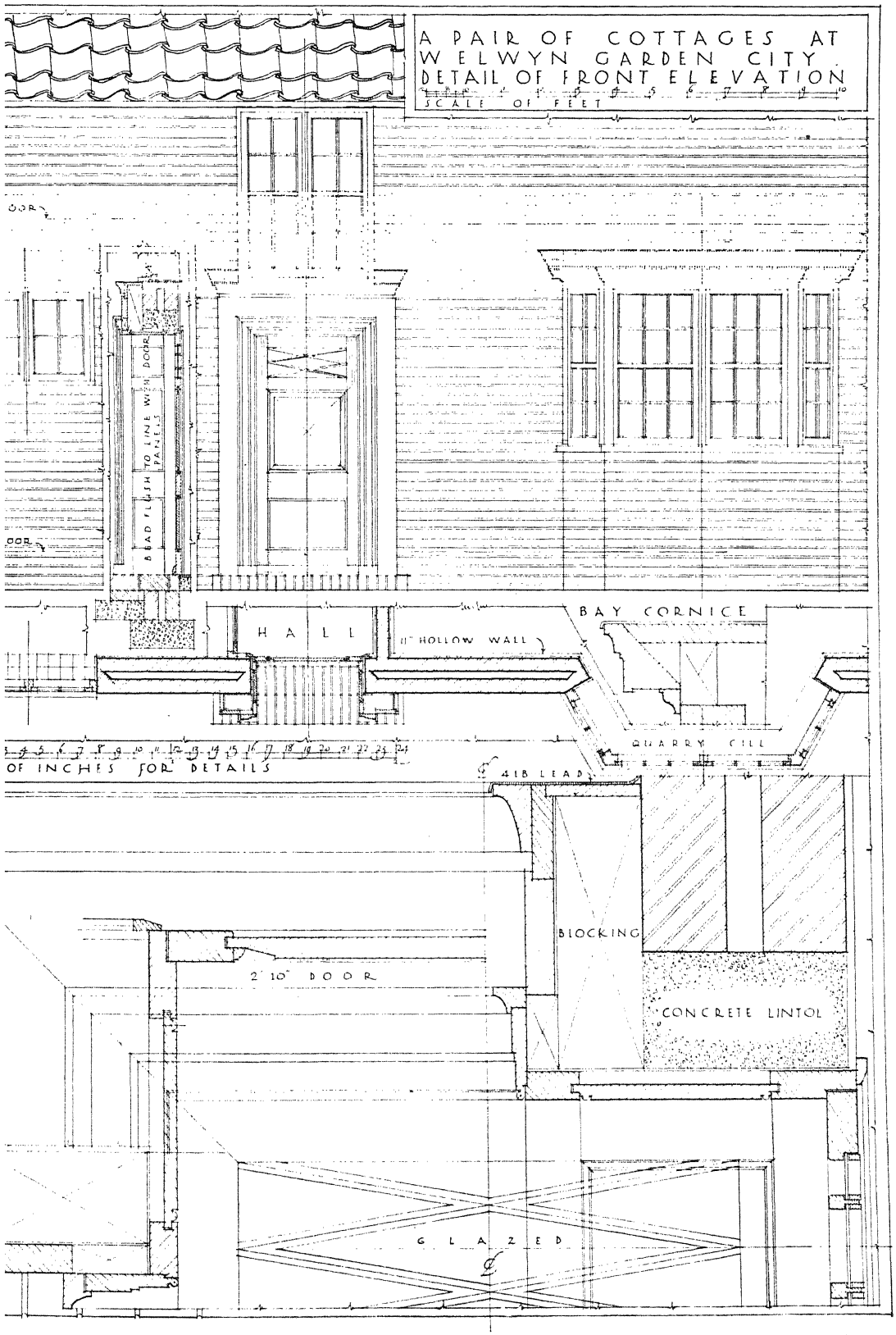

B.M. delt.
ROADWAYS ON VARIOUS HOUSING SCHEMES
BY MESSRS ADSHEAD & RAMSAY ARCHITECTS
PLAN
ELEVATION
SECTION
SCALE OF FEET
Slate

PLATE CXXXV.



B.M. delt.

PLATE CXXXVI.



B.M. delt.

PLATE CXXXVII.

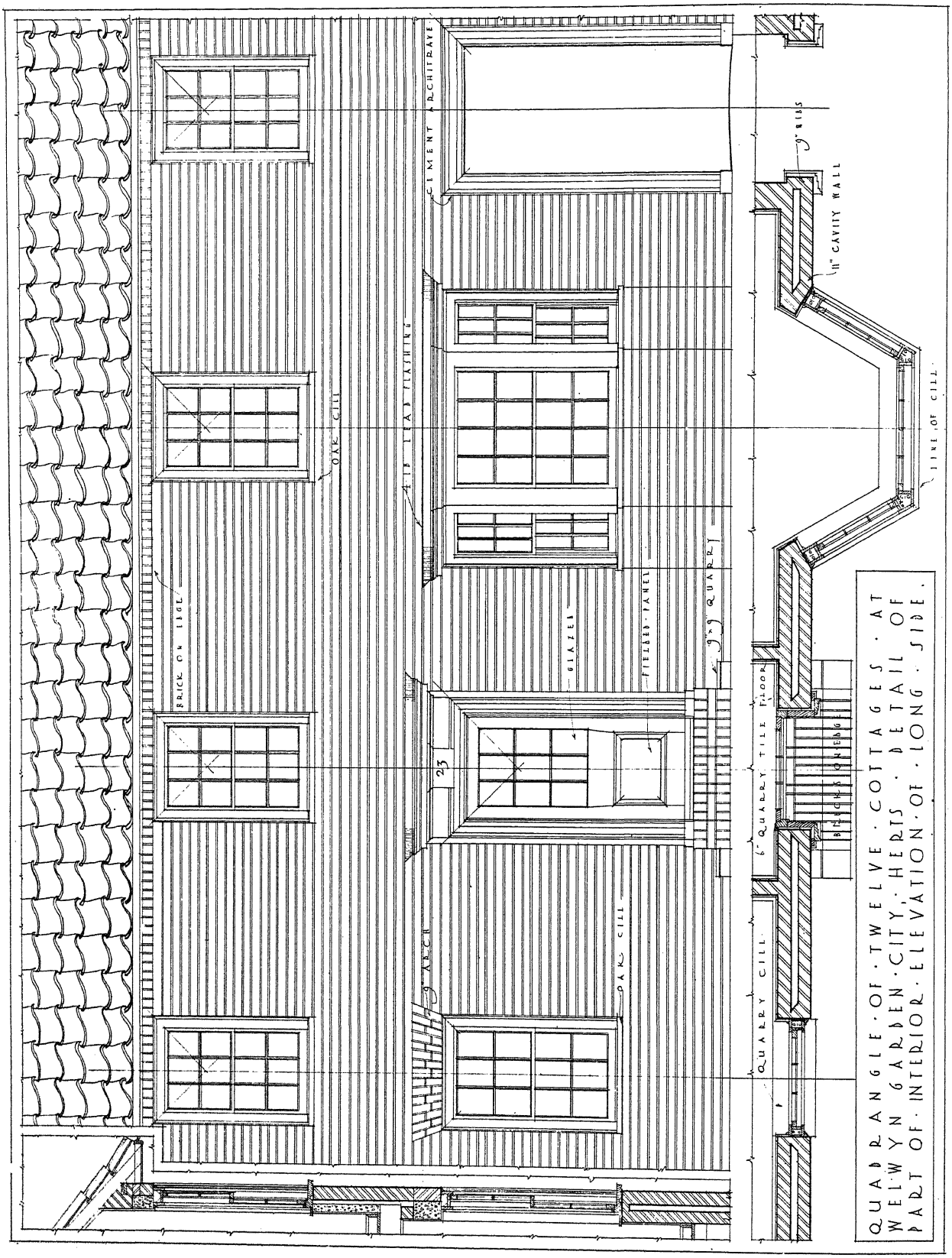
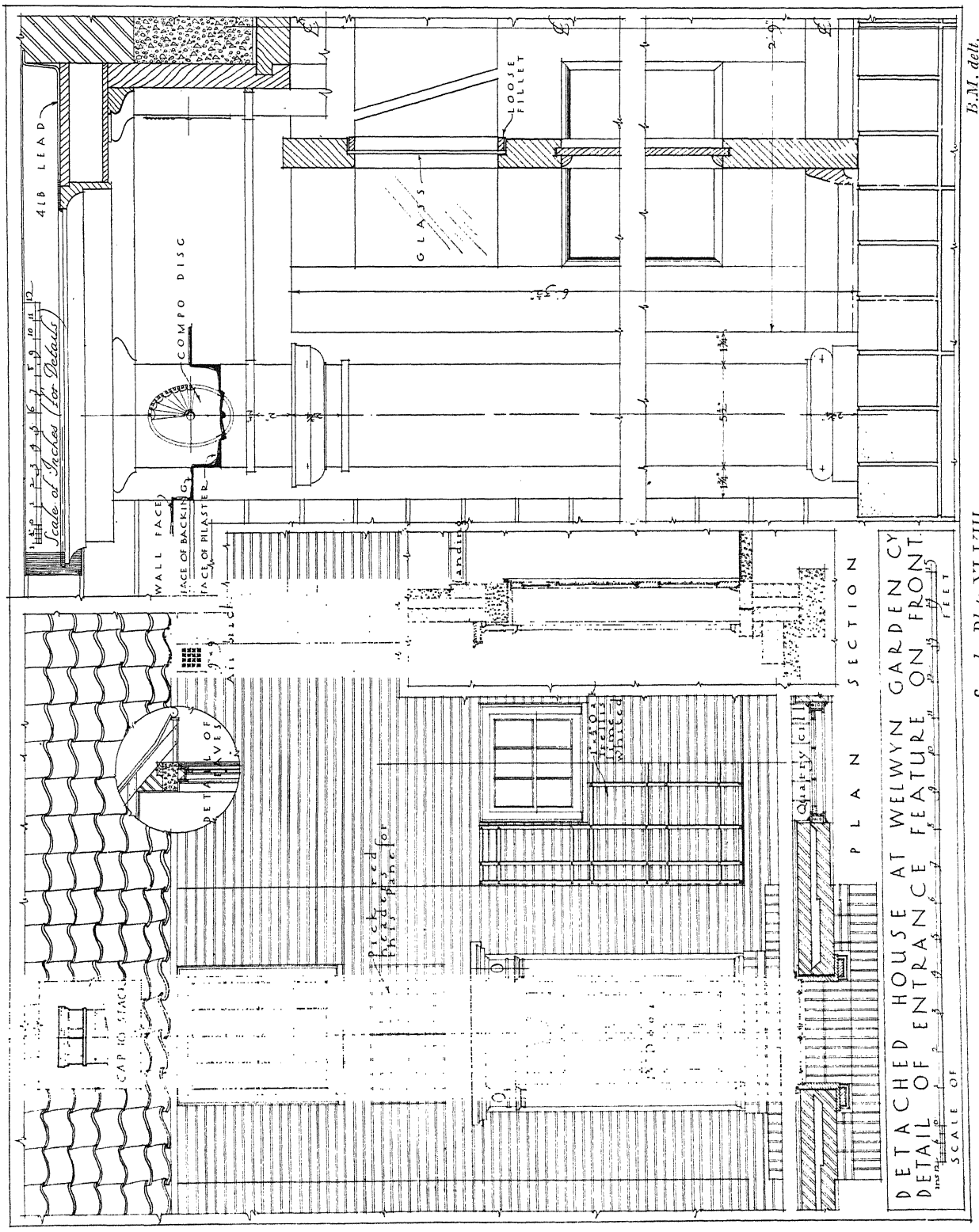


PLATE CXXXVIII.



See also Plate XLVIII.

PLATE CXXXIX.

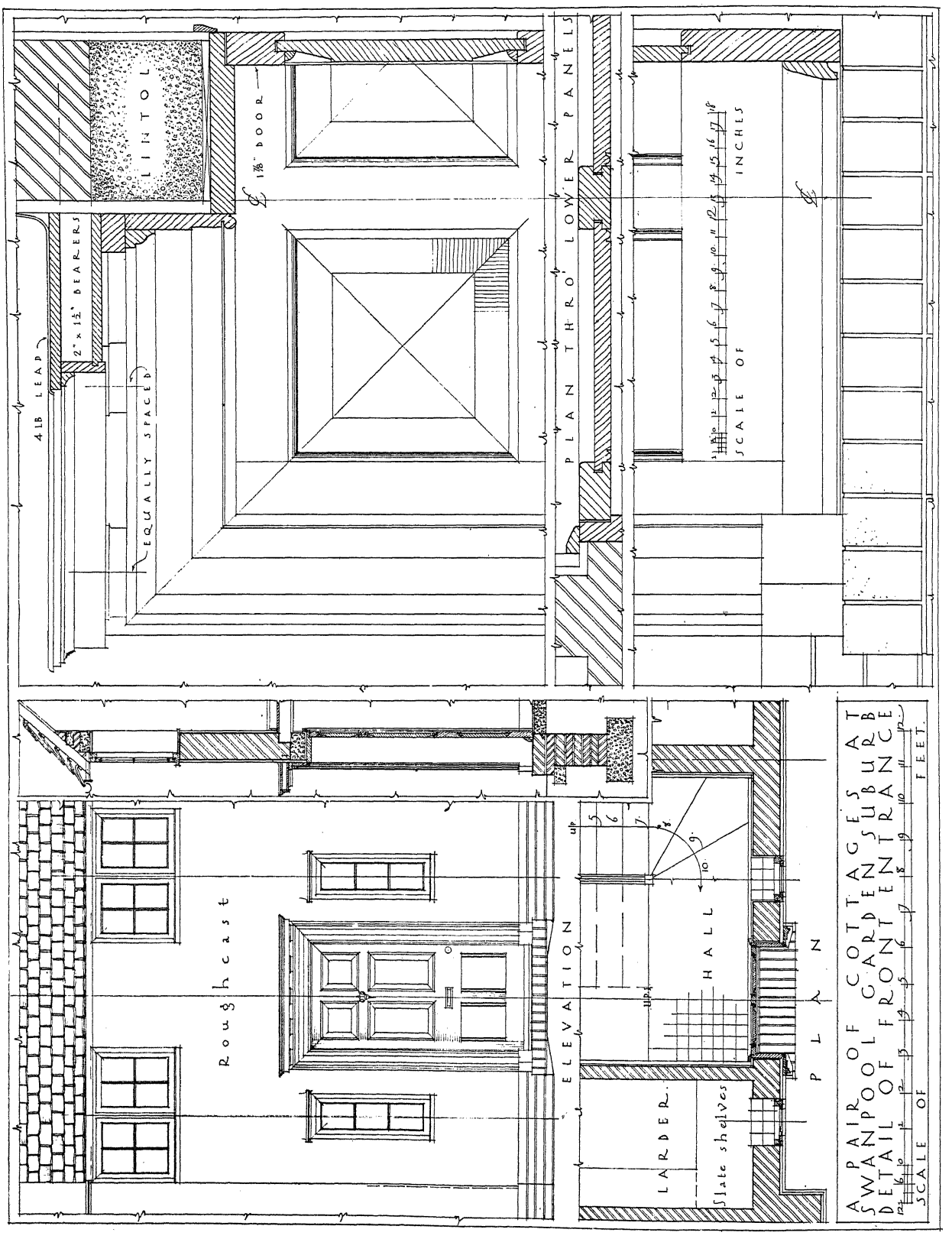
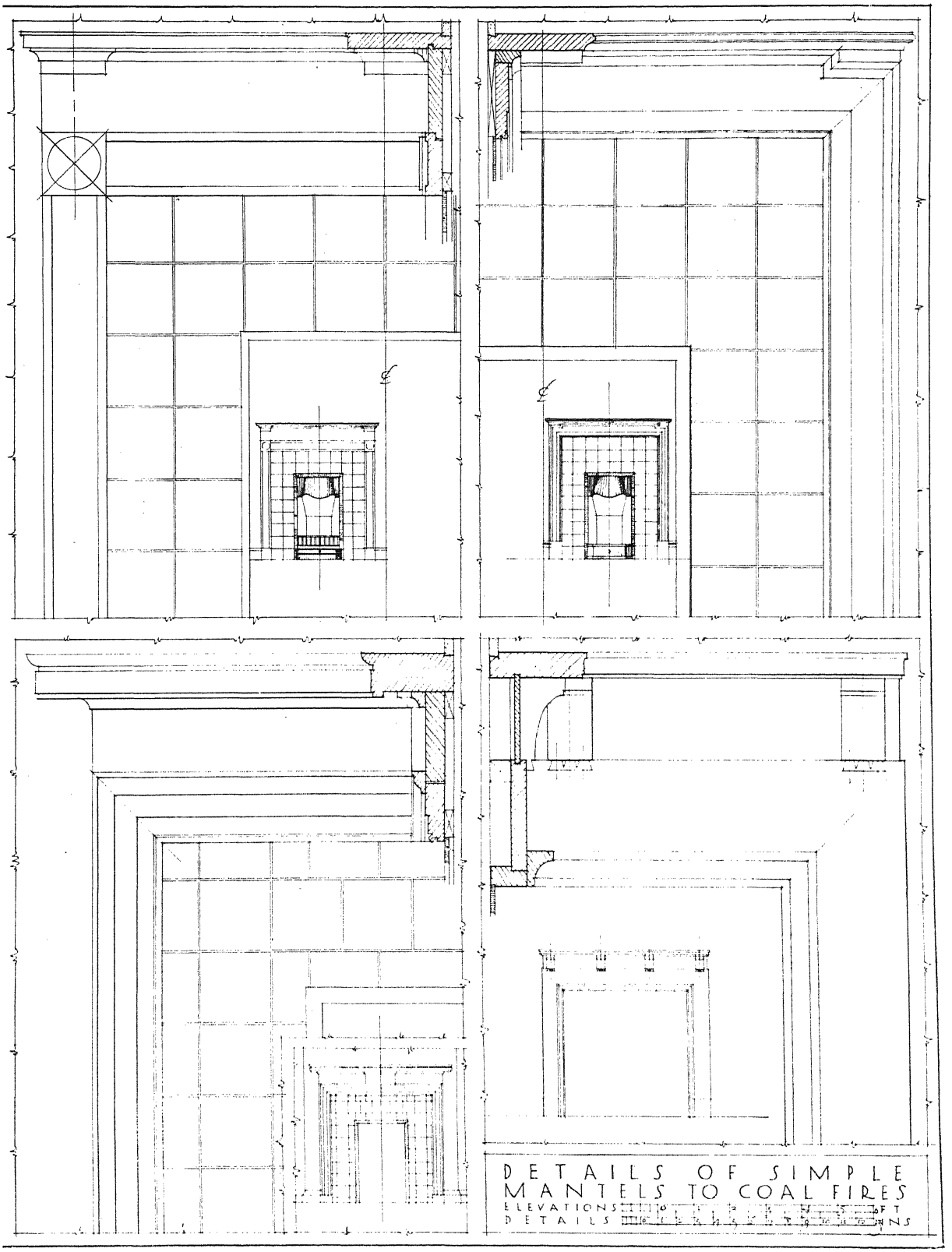


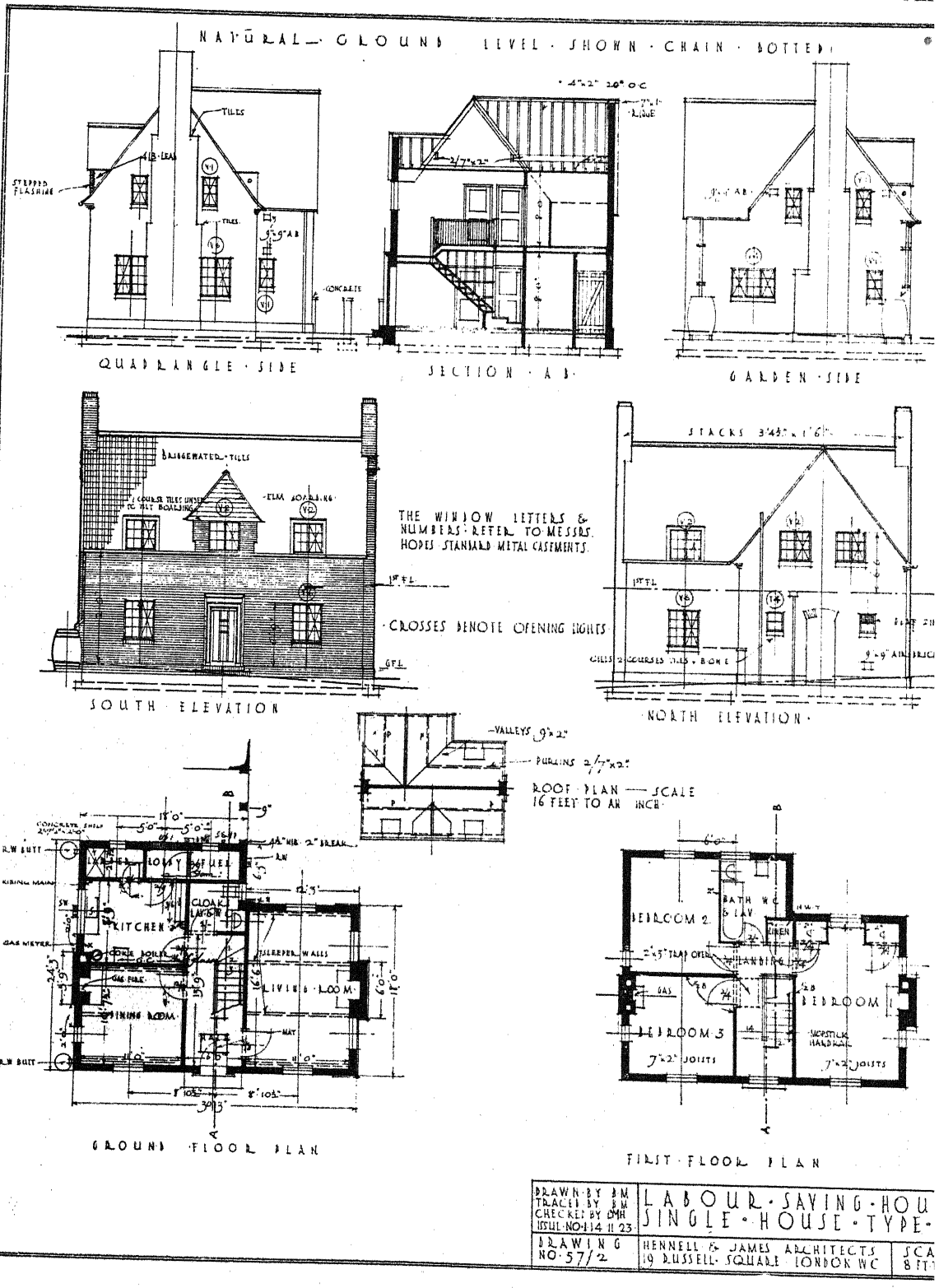
PLATE CXL.



B.M. delt.

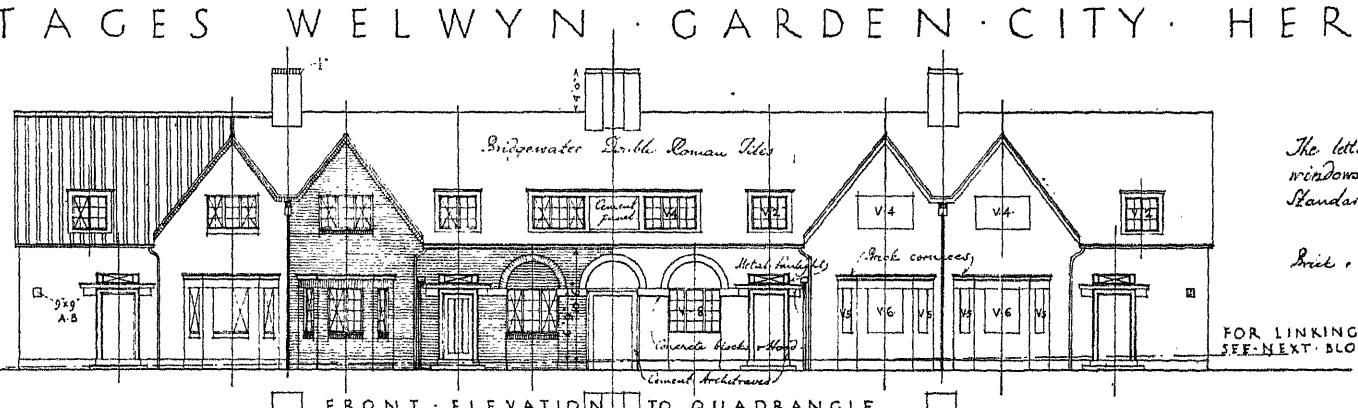
APPENDIX

A GROUP OF FOURTEEN COTTAGES AT WELWYN GARDEN CITY



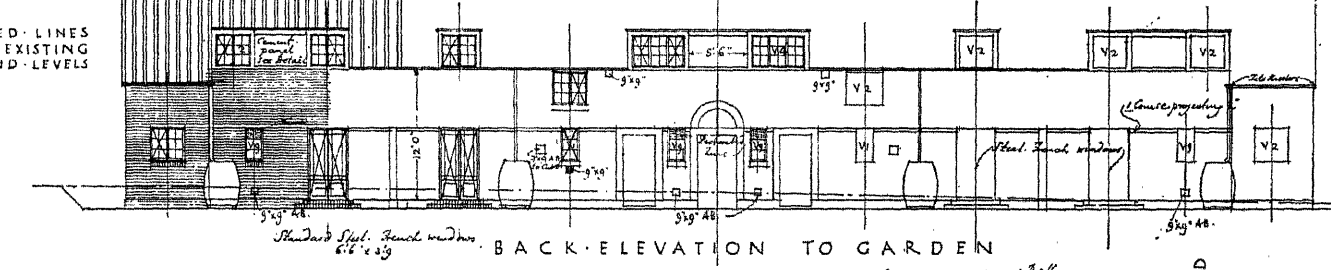
DRAWN BY BM TRACED BY BM CHECKED BY DMH ISSUE NO 1 14 11 23	LABOUR-SAVING-HOU SINGLE-HOUSE-TYPE-	
DRAWING NO 57/2	HENNELL & JAMES ARCHITECTS 19 RUSSELL SQUARE LONDON WC	SCA 8 FT

LABOUR SAVING HOUSES LTD BLOCK OF FOUR COTTAGES WELWYN · GARDEN · CITY · HERTS · TYPE 'L'

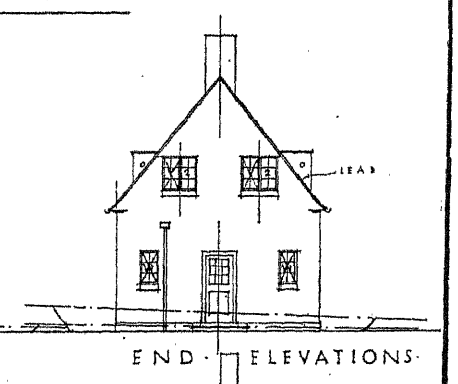


FRONT · ELEVATION TO QUADRANGLE

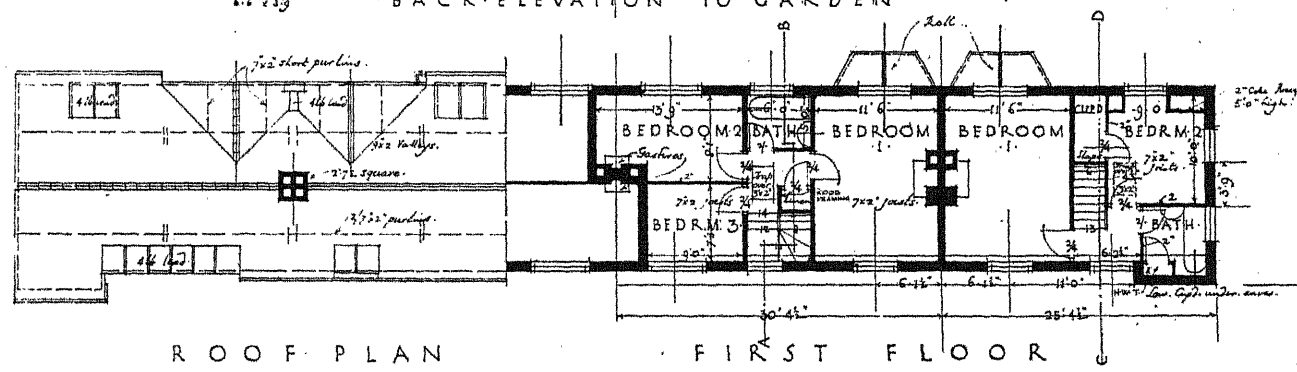
DOTTED · LINES SHEW · EXISTING GROUND · LEVELS



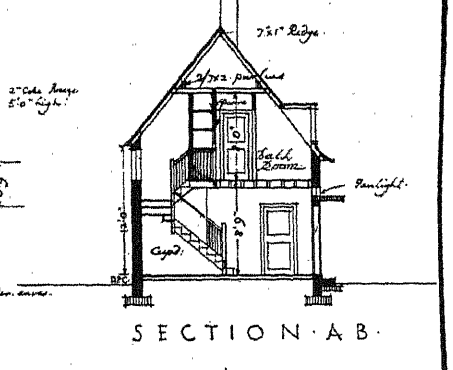
BACK · ELEVATION TO GARDEN



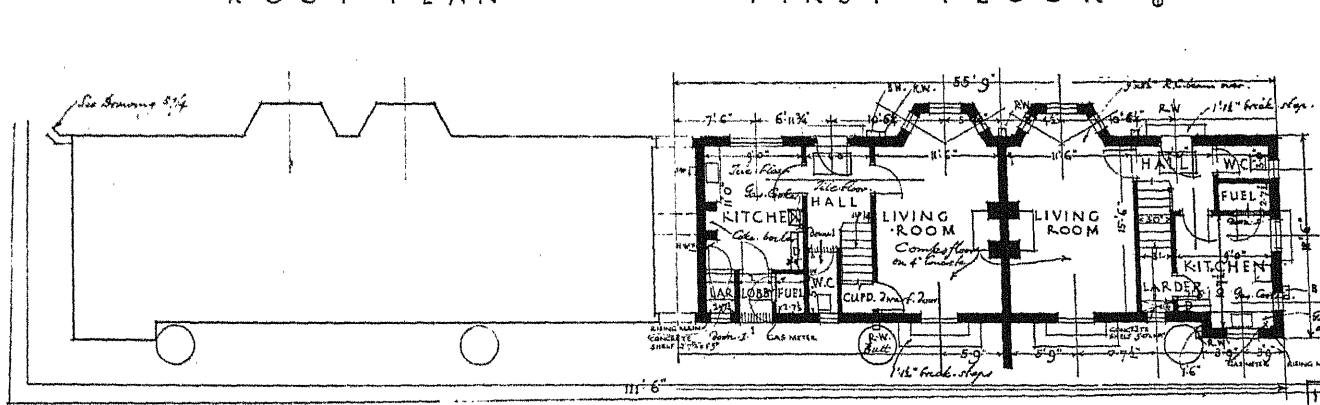
END · ELEVATIONS



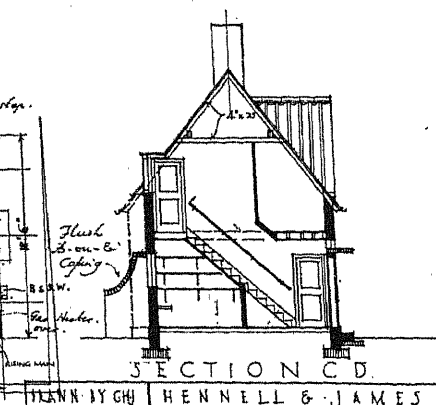
ROOF PLAN · FIRST FLOOR



SECTION · A·B ·



GROUND PLAN

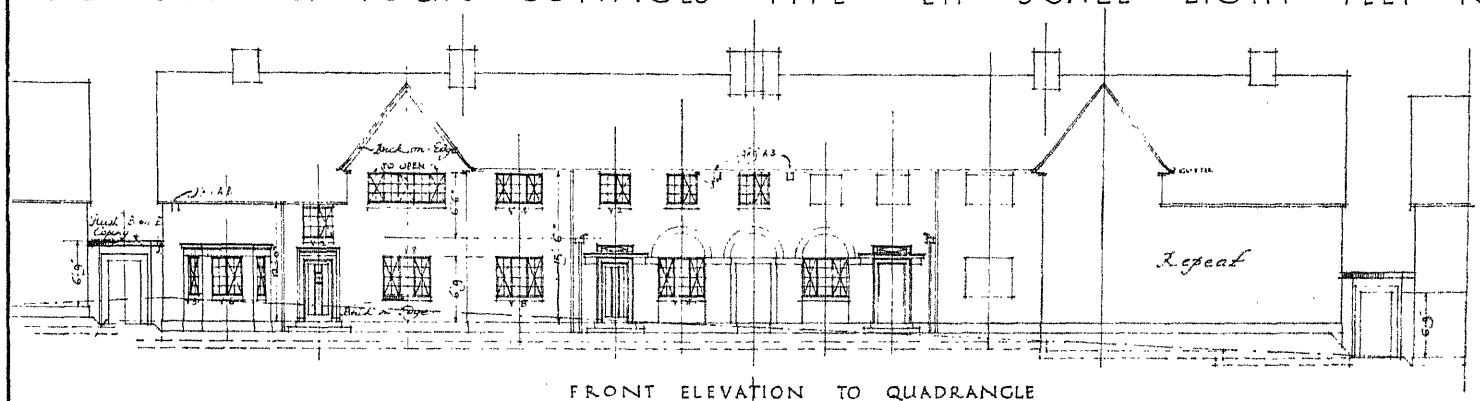


SECTION C·D

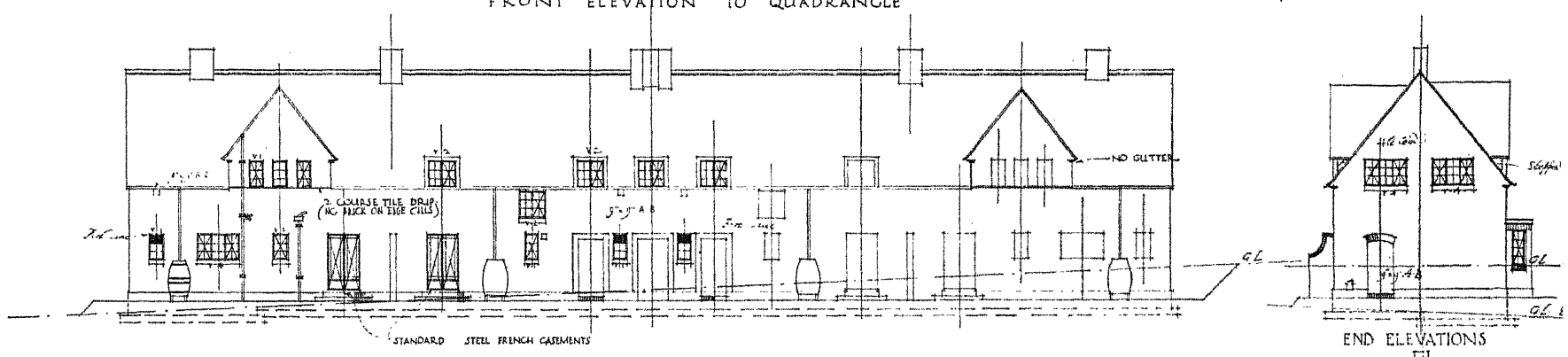
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CHECKED·BY GHJ
ISSUE · NO 1
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HENNELL & JAMES
ARCHITECTS
19 · RUSSELL SQUARE W.C.1.
SCALE · 8FT·TO AN INCH DRG·N° 57/3

LABOUR SAVING HOUSES WELWYN GARDEN CITY HERTS
BLOCK OF FOUR COTTAGES TYPE LII SCALE EIGHT FEET TO AN INCH

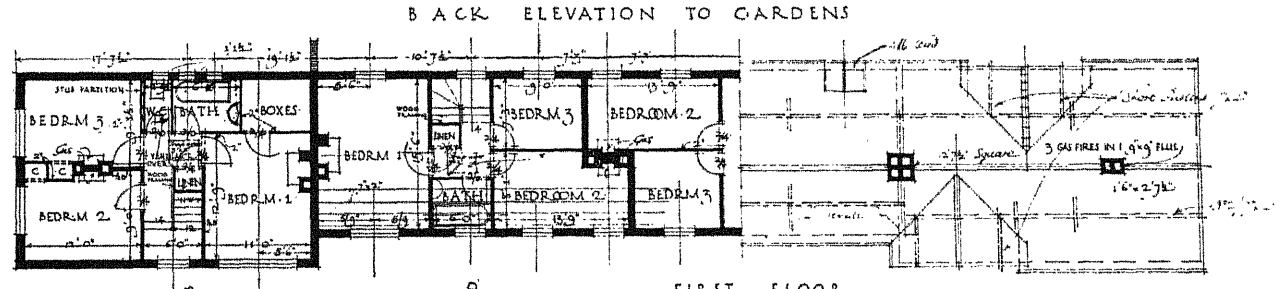


FRONT ELEVATION TO QUADRANGLE

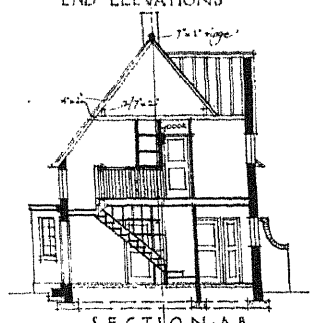


BACK ELEVATION TO GARDENS

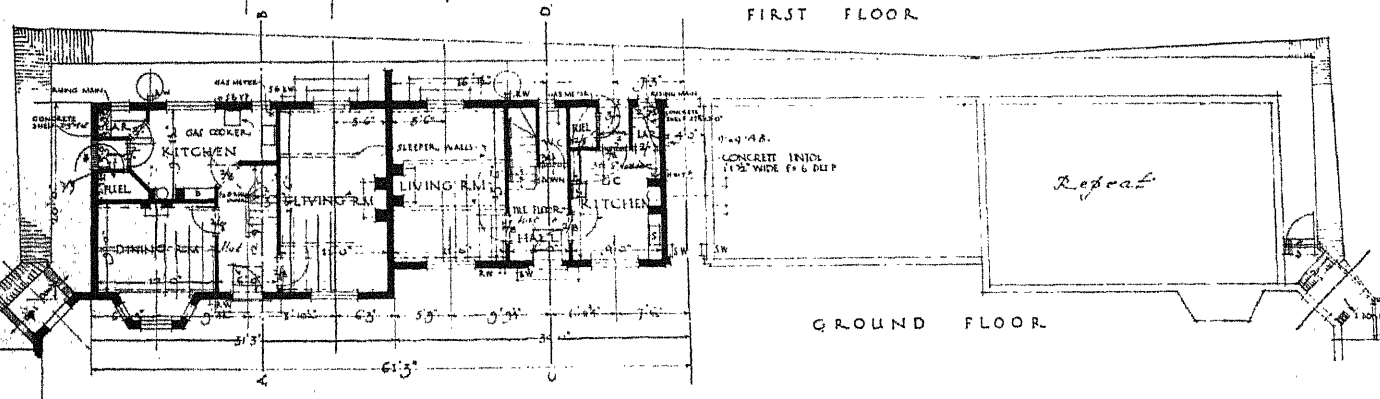
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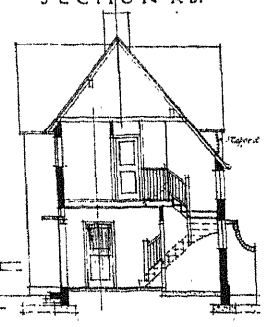
FIRST FLOOR



SECTION A.B.



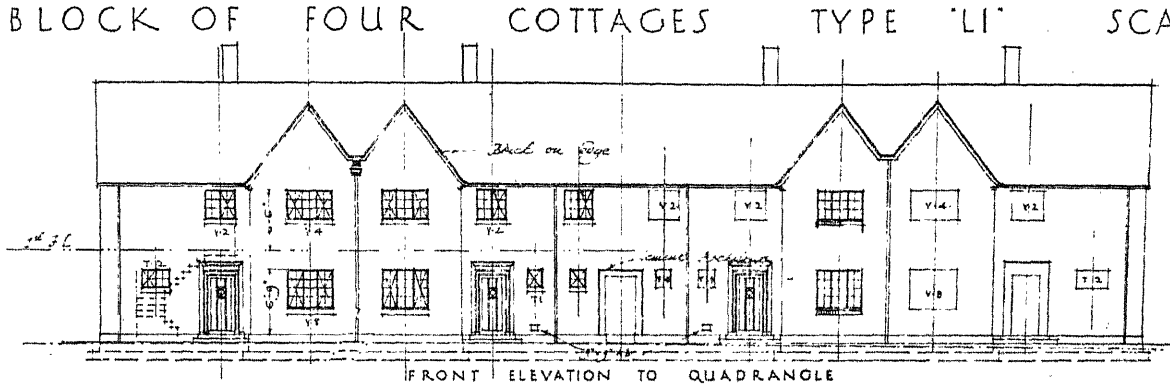
GROUND FLOOR



SECTION C.D

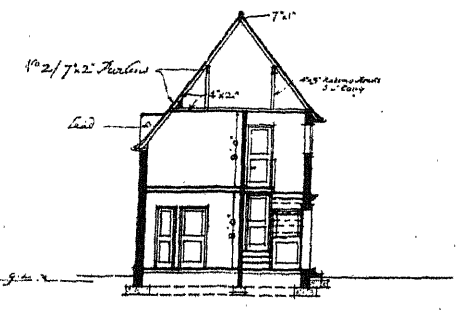
DRAWN BY GHJ	HENNELL & JA	
TRACED BY BH	ARCHITECT	
CHECKED BY GHH	19 RUSSELL SQ W	
ISSUE NO 1	NOV 19 1925	DRAW

LABOUR SAVING HOUSES LTD WELWYN GARDEN CITY
BLOCK OF FOUR COTTAGES TYPE "LI" SCALE · EIGHT·FT·6·1·INCH



FRONT ELEVATION TO QUADRANGLE

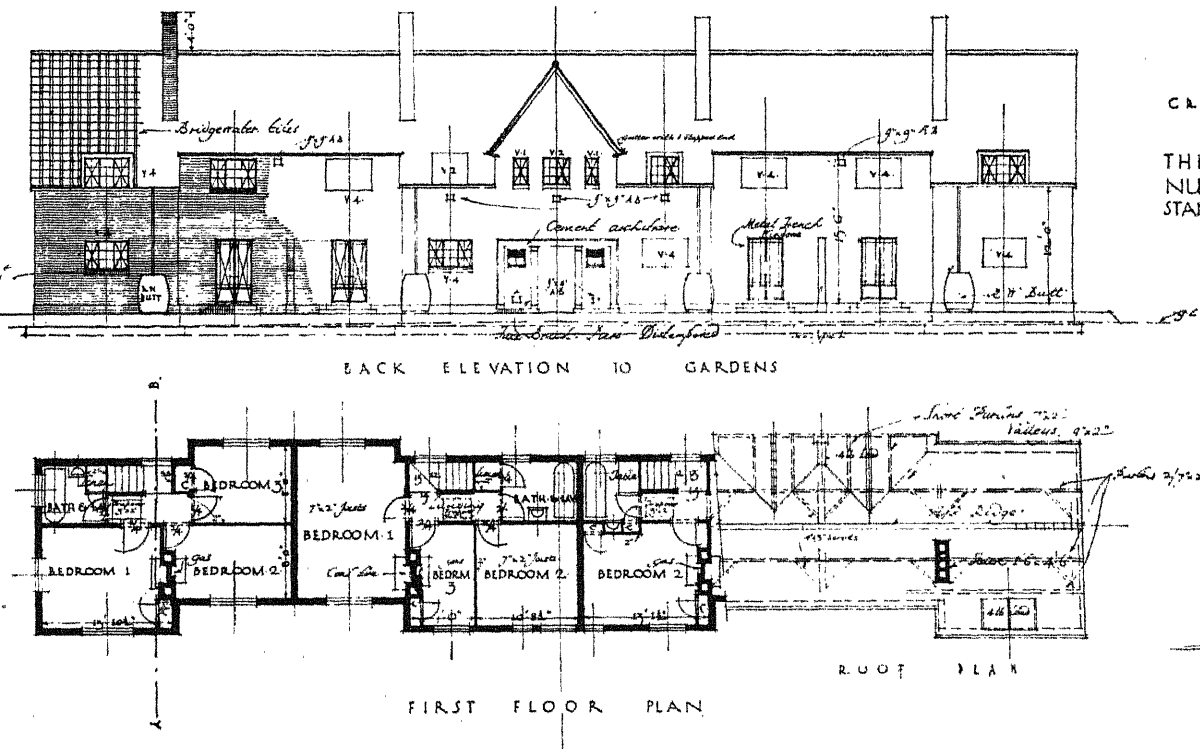
BACK ELEVATION TO GARDENS



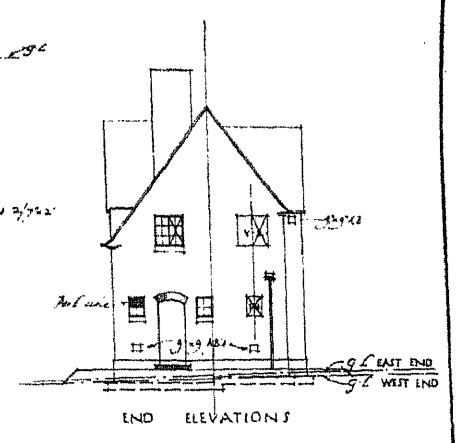
SECTION A·B

CROSSES DENOTE OPENING LIGHTS

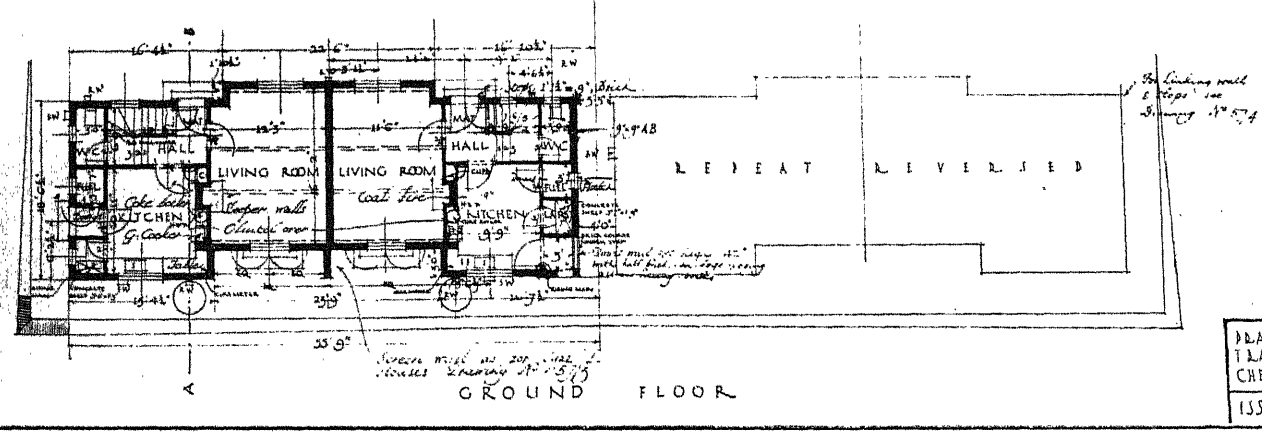
THE · WINDOW · LETTERS & NUMBERS · REFER · TO · HOPES STANDARD · METAL CASEMENTS



FIRST FLOOR PLAN



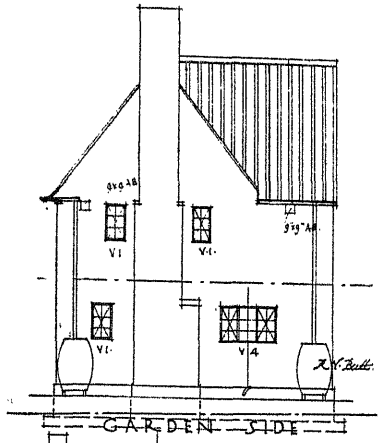
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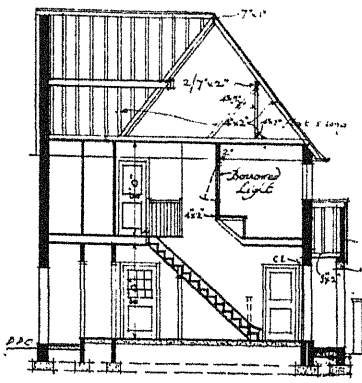


GROUND FLOOR

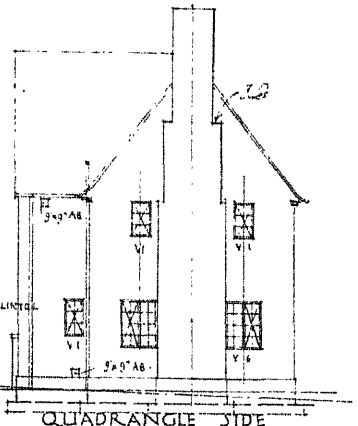
DRAWN BY· B.M TRACED BY· B.M CHECKED BY· C.H.J	HENNELL & JAMES ARCHITECTS 19 RUSSELL·SQ W.C.1
ISSUE·NO·1 NOV 17 1923	DRAWING NO 575

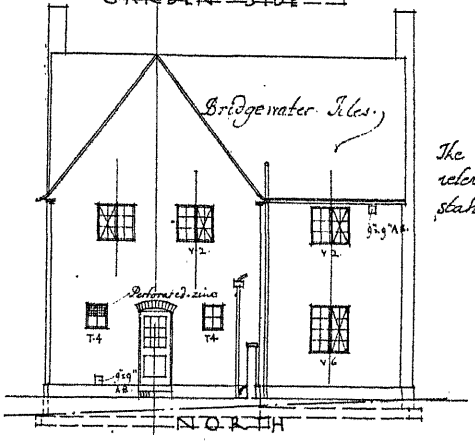
LABOUR SAVING HOUSES LTD WELWYN
SINGLE HOUSE TYPE LIV SCALE · 8 FT TO · AN INCH.



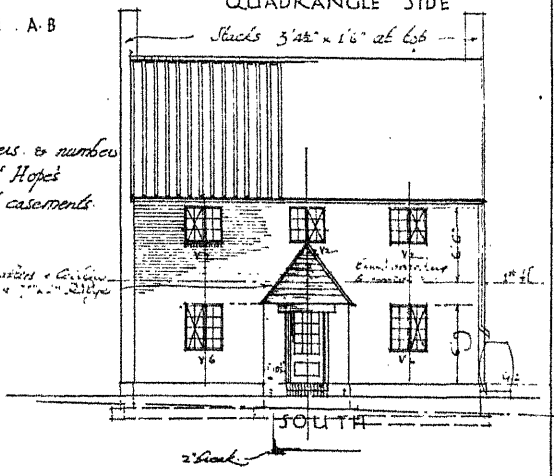


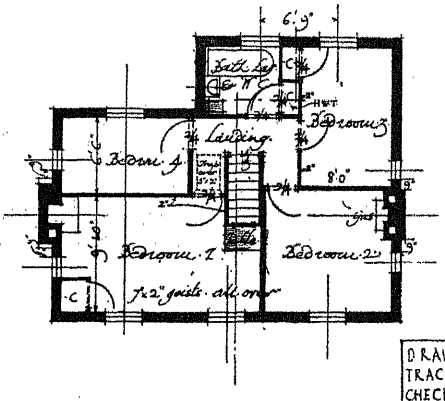
SECTION . A·B



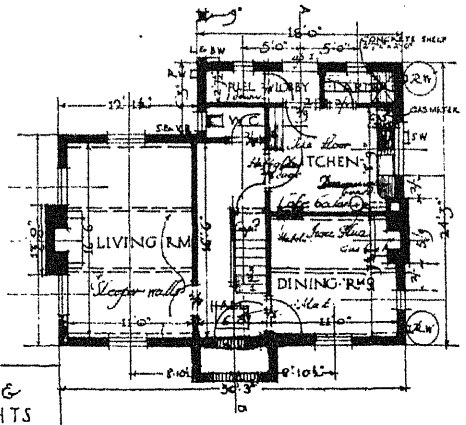


The window letters & numbers refer to Mess^rs Hope's standard metal casements.





FIRST FLOOR



GROUND PLAN

DRAWN BY · BM TRACED BY · BM CHECKED BY · CHJ ISSUE Nº 1	HENNELL & JAMES ARCHTS 19 RUSSELL SQ.
NOV · 21 1923	DRAWING · Nº 57/6

SPECIFICATION OF WORKS

SPECIFICATION OF WORKS to be executed and Materials to be provided in the erection and completion of Fourteen Houses (three blocks of four, Types L, LI, and LII, and Two Single Houses, Types LIII and LIV), in a Close on the North-East side of High Oaks Road, Welwyn Garden City, Herts., for Labour Saving Houses, Ltd., being the 7th Section of their Scheme, to the design of

HENNELL AND JAMES,
Architects,
19, Russell Square,
London, W.C. 1.

December, 1923.

PRELIMINARY

. . . The work to be done under this specification is to include all the general and preparatory work, and is to be carried out in accordance with the Conditions of Contract published by the Royal Institute of British Architects.

. . . The Contractor is required to inspect the site before tendering.

. . . Provide the water necessary for the use of the works, also adequate latrine accommodation for the workmen and clear away at completion.

. . . Attend upon, cut away for and make good after all trades in all trades.

. . . Houses Nos. 1 to 5 inclusive will be required to be completed within five calendar months from the date on which the architect's order to commence is given; Houses 6 to 9 inclusive within a further period of two calendar months, and Houses 10 to 14 within the next two calendar months, subject to liquidated damages of £2 per week per house, for every week or part of a week beyond the said periods, or such extended time as may be granted by the Architect, that it takes to complete any house.

. . . The Contractor is to give all requisite notices and descriptions to Local Authorities and pay all fees legally demandable.

. . . Perform all setting out of the works. No claim for extra work occasioned through mistakes in setting out will be allowed.

. . . All half-inch and full size details will be supplied, and the Contractor must apply for same before commencing the work.

. . . A competent Foreman is to be kept constantly on the works while in progress, and he shall keep on the works copies of all drawings, specifications and instructions. Any orders given to him by the Architect shall be deemed to have been given to the Contractor.

. . . Provide watching and everything else necessary by day and night for protection and security of the works and the public.

11. Insure the building against fire, as set forth in the Conditions of Contract.

12. The Contractor is not to sub-let the works or any part thereof without the written consent of the Architect.

13. Provide the sum of £10 (ten pounds) per house, making £140 (one hundred and forty pounds) in all, for extra works to be deducted wholly or in part as not required to be used. No extra will be recognised unless the Architect's written authority for same has been given.

EXCAVATOR AND CONCRETOR

14. **Approach to Site.** The short approach road from High Oaks Road to the south-west boundary of the site will be made by the Welwyn Garden City, Ltd.

Provide any necessary temporary tracks on the site and clear away at completion.

15. **Surface Soil, etc.** Remove the surface soil, etc., to the depth required under the buildings, and form the cuttings and embankments shown on the drawings. Top soil is to be kept separate from the deeper excavated material and not buried.

All excavated material is to be disposed of on the site where directed.

16. **Trench Digging.** Excavate below the foregoing level for the trenches required for the foundations to all the walls, piers, chimney breasts and other work, indicated on the drawings to the lengths, widths, and depths shown, or to greater depths should the earth at the levels indicated not be sufficiently solid for a good foundation. Level the bottoms of the trenches for the concrete.

17. **Timbering.** Strut and plank all excavations where necessary, and keep same clear of water and falling material.

18. **Filling.** Fill and ram the best of the excavated earth about the foundation of walls, etc. and level the surplus as required.

19. **Consolidate Earth.** Well level, ram and consolidate the earth below all floors and paving, concrete, etc.

20. **Lime.** For concrete is to be well burnt blue lias lime of approved quality.

21. **Portland Cement.** To be of a quality which complies with the current Specification adopted by the British Engineering Standards Committee, slow setting quality to be used generally.

22. **All Sand.** To be clean, sharp, coarse, pit sand, free from loam, clay or other impurities.

23. **Aggregate for Concrete.** To be composed of approved gravel, or other suitable coarse material capable of passing a 2″ ring, with sufficient sand to fill up all interstices.

24. **All Gauging Concrete Mortar, etc.** To be performed on proper wooden platform, and proper gauge boxes are to be used.

25. **Concrete in Foundations.** To be composed of one part by measure of lime to five parts by measure of aggregate, and is to be laid in the trenches and carefully levelled to receive the brickwork.

26. **Foundations.** Excavate for and lay concrete foundations, as described, and as shown on the drawings.

27. **Surface Concrete.** Lay over the whole surface of the building a bed not less than 4″ thick of cement concrete (7 and 1) levelled and prepared where necessary to receive such other floors and pavings thereon as may be specified.

28. **Cement Pavings.** Finish the floors of all back lobbies and fuel stores, also the cupboards under stairs in Houses 10, 11, 12 and 13 (Type LI.), also 14 (Type LIV.), with 1″

thickness of Portland cement and sand (1 and 2) floated to a smooth and even surface.

Similarly finish, but (1 and 3), floors of Living-rooms to Houses 2, 3, 4, 5, 6, and 7, and Dining-room of House No. 6 to receive composition flooring. Floors of all Halls, Kitchens, Larders and ground floor W.C.'s to be floated to receive tiles.

29. **Hearths.** On ground floors to be of concrete as described 4″ thick, with hard core filling to fender walls, well rammed and levelled.

Upstairs hearths to be of Portland cement and fine ballast concrete (5 and 1), 4″ thick, the hearths to coal fires to be reinforced with ½″ gas barrel 6″ apart, let into brickwork and right through trimmers. All hearths are to be floated to receive tiles.

30. **Lintols.** To be coke breeze concrete (5 breeze and 1 cement), the coke breeze to average ¾″ nuts. These are to be of the following dimensions and reinforced with mild steel bars, as follow :—

Lintols not exceeding 4′ span to be 6″ high, and one ½″ bar to each half brick in thickness ; over 4′ span, 9″ high and ¾″ bars as last.

Lintols to have 6″ bearing at each end. Exposed surfaces of lintols are to be faced up perfectly smooth with cement.

Note.—Concrete lintols in external walls where behind facing brickwork to be cast *in situ* and to have the facing bricks cast in with them, alternate headers to be snapped to ¾-brick length to bond in with concrete.

31. **Concrete Beams.** The beams over openings for bay windows to be 8½″ × 9″ of cement concrete (1 cement, 2 sand and 3 of fine ballast) reinforced with four ¾″ mild steel bars bent up and hooked at ends as directed.

32. **Doorway Hoods, etc.** The hoods to front doorways of four cottages Type L (Nos. 2, 3, 4 and 5) and two centre cottages, Type LII. (Nos. 7 and 10), also the blocks and string as shown adjacent to same to be in fine cast concrete (1 cement, 1 sand and 2 of very fine ballast), all cast to detail and built in as the work proceeds. Blocks and string to be 4¾″ thick, projecting ¼″ in front of brick face. All exposed surfaces to be finished perfectly smooth.

The caps to piers between Houses Nos. 1 and 2 and Nos. 13 and 14 to be in similar concrete, 2″ thick, and projecting ½″ beyond piers all round.

DRAINAGE

33. **Soil Drains.** The whole of the drains are to be laid to the satisfaction of the Architect and the Local Authority.

The pipes for soil drains are to be the best quality salt glazed stoneware pipes, with socket joints and all necessary bands and junctions, laid to straight runs and to even and regular falls.

Pipes are to be laid not less than 18″ deep below the surface of gardens and 12″ deep below pavings, to be jointed in Portland cement and sand (1 and 1), and the inside of pipes to be carefully cleaned out so as to leave a perfectly clear and unobstructed waterway.

Note.—No bends or junctions to have a radius of less than 18″.

34. **Rainwater Drains.** To be all as last, except those leading to soakaway pits, which are to be 3″ agricultural pipes with open joints.

35. **Filling.** In filling in the trenches after the drains are laid and tested, great care is to be exercised so as not to disturb the drains, and the finest and best of the excavated material is to be used for packing around the pipes ; the whole is to be carefully and thoroughly consolidated and rammed, and any depressions in the finished surface over drains made up.

36. **Gullies for Sink and Bath Wastes.** At feet of bath, lavatory basin, and sink wastes, provide and fix 4″ salt glazed ware trapped gullies, with 6″ × 6″ cast-iron grating. Bed and surround the gullies with Portland cement concrete and joint to drain and provide and fix at sides of gullies 4″ salt glazed open channel, 18″ long, discharging over gully and set in cement concrete. Form brick or concrete curb around these gullies and finish in Portland cement and sand, gauged 1 and 3, with rounded top, and render the wall of building next gully with cement and sand 9″ high. Finish with return and arris at top, and continue the curb around the open channels.

37. **Rainwater Gullies.** At feet of rainwater pipes, provide and set on bed of Portland cement concrete, approved 9″ × 9″ cast-concrete catch pit gullies 15″ deep with side outlet 6″ above bottom with cast-iron grating and brick or concrete curb, as last.

38. **Gratings.** All to be of the straight bar type.

39. **Rainwater Sumps.** Excavate for soakaway pits where shown, 3′ diameter and 3′ deep below invert of discharging drain, to be filled in to within 2′ of ground level with approved hard dry filling, a sheet of expanded metal and a layer of coarse sacking laid over same, the earth then filled up to ground level.

40. **Rodding Eye.** To be formed in the position shown by turning an easy bend up to within 6″ of the ground and fitted with an approved airtight removable stopper. Build small chamber round this with half-brick sides on a 3″ bed of concrete benched up to fall towards stopper. Render the whole of inside with cement and cover with an approved airtight cover and frame.

Form junction in drain next vent pipe and provide and fix cast-iron coated airtight cover and frame bedded in cement in socket of pipe.

41. **Inspection Chambers.** Build inspection chambers in the positions shown, in Arlesey bricks, and of 2′ 2″ × 1′ 10½″ minimum size, with 4½″ brick sides to those 3′ deep and 9″ brick sides to those exceeding 3′ deep, in cement mortar upon Portland cement concrete bottom (7 and 1) 4″ thick, the bottom benched up with steep falls to channels in fine Portland cement concrete, and the bottom and sides rendered watertight in cement and sand (1 and 2), trowelled smooth. Provide approved cast-iron coated covers and frames as required, bed the frame in cement and the cover in grease and sand. Provide and bed in cement in bottom of manhole salt glazed-ware half-round main channel pipes, and similar ¾ branch channel bends. Chambers exceeding 3′ deep are to have cast-iron coated step irons built into side 18″ apart.

42. **Ventilating Pipes.** Provide and fix, where shown, 3½″ diameter cast-iron coated ventilating pipes, as hereinafter described in " Plumber."

43. **Connections to Sewers.** Give the necessary notice to the Welwyn Garden City, Ltd., and pay their charges of £9 9*s.* each for the two connections to sewer manholes in the positions shown (one for soil and one for rainwater).

44. **Testing.** No length of drain is to be covered in until it has been tested and passed. The whole of the drainage is to be tested again at completion with water or other

test to the satisfaction of the Local Authority and the Architect, and is to be well flushed out at completion of work.

PAVINGS, PATHS AND FENCES

45. Concrete Paving. Provide and lay to each house, where directed, 50 square feet of concrete paving, 4″ thick (1 *cement* to 6 of aggregate as described) finished with 1″ thickness of Portland cement (1 and 2) floating to a slight fall, with creosoted deal edging to three sides of each paving.

46. Paths and Fences. Provide the sum of £250 (two hundred and fifty pounds) for paths and fences.

BRICKLAYER

47. Builiding Bricks. To be approved good hard sound bricks. Fletton bricks are not to be used underground, but good quality white Arlesey bricks will be approved for foundation work.

48. External Facings. All external facings, also all brick cills, header and soldier courses, half-brick surrounds to panels in brickwork, brick on edge courses up gables and all steps to be in Dorking Brick Company's purple pressed facing bricks, p.c. 132*s*. per M. on site.

Note.—Inside of porch to House No. 14 is in facing bricks.

49. Mortar. For brickwork throughout to be composed of one part by measure of finely burnt freshly ground grey stone lime, one of Portland cement and eight of sharp sand. Coke breeze slabs to be built in cement mortar (1 and 4).

50. Brickwork. The whole of the walls, piers, chimneys, etc., are to be built of the lengths, heights and thicknesses shown on the drawings in Old English Bond, well flushed up and the cross joints filled in solidly.

51. Sleeper Walls. Build 4½″ honeycomb sleeper walls, as shown, and not more than 5′ apart, to receive wood ground floors, and 4½″ fender walls to ground floor hearths in same.

52. Pointing. All the joints of facing brickwork are to be well filled in, flushed up and struck off flush as the works proceed. *No weathered or reversed weathered pointing will be permitted in any of the work, external or internal.* The brickwork is to be either left rough or well raked out where the walls are to be plastered.

53. Internal Fair Face. The walls to kitchens, larders, back lobbies, fuel stores and cupboards under stairs, also passage-ways between houses, to be built up fair face with a neat *flush* joint, and any unevenness made up by dinging. This includes inside of chimney openings in kitchens containing boilers.

54. Party Walls. To be 9″ thick but built practically hollow, all bricks being built on edge and in Flemish bond, the stretchers having a 3″ cavity between them, but the headers going right through the wall. The party walls in roofs to be 4½″ thick, stepped and finished on top with at least 3″ cement and clinker concrete carefully brought up to the line of the roof slope for nailing roof coverings to without use of battens, for protection from fire.

55. Plinths. To project ½″ in front of general brickwork, by setting the whole plinth ½″ forward.

56. Arches. Where shown to be in approved red facings neatly axed and set and pointed in mortar.

57. **Cills.** To all steel windows (except dormers which have oak cills) to be in pressed bricks on edge flush with general brickwork with two courses of plain roofing tiles set slightly weathering over same and projecting 1″ in front of brickwork, all bedded and pointed in mortar.

Note.—There are no brick on edge cills to windows in gables on back elevation of Type LII. or to hatches in passage Type LI.

58. **Tile Kneelers, etc.** Form kneelers, as shown, and to detail, also weathering to buttresses of stacks in plain roofing tiles set and pointed in mortar. Build neckings and caps to centre brick piers, back elevation, Type LI., in roofing tiles. Form all tile string courses, etc., shown, also copings to parapets between M gables with two courses of tiles.

59. **Thinned Brick Walls.** The panels beneath semi-circular arches in centre of front elevation on blocks, Types L. and LII., also below the windows under same, are recessed 1½″ behind the general face of brickwork. The facing bricks to be in stretching bond backed with bricks on edge.

60. **Backing to Elm Boarding.** The gable of central dormer on south elevation, Type LIII., where shown covered with elm boarding to be built of two skins of 2½″ coke breeze concrete slabs with joggle joints in cement mortar, with 4″ cavity between, tied with No. 8 wall ties. The elm gable to porch of House No. 14 to be backed with one thickness of 2½″ slabs.

61. **Screen and Connecting Walls, etc.** The screen walls at the back of all blocks of four houses and the connecting walls between blocks to be built in facing bricks with brick on edge coping in cement mortar (but no creasings). Piers between Houses Nos. 1 and 2 and 13 and 14 to be similar but with concrete caps, as previously described.

62. **Sundries.** Build in as the work proceeds, and point in cement mortar around all frames, wood and iron, bed in mortar all beams, sleepers, and plates, lintols, templates, slips, concrete and metal work set in the brickwork. Point round all frames in facings and fair face brickwork.

63. **Partitions.** All division ground floor walls carrying upper floor joists to be 4½″ brick in cement mortar, carried up to first floor ceilings where possible. Internal partitions where indicated on the drawings to be 2″ breeze partition slabs with joggle joints set in cement mortar and well pinned in and tied to the brick walls.

64. **Damp Course.** Lay to all walls, piers, chimney breasts, sleeper walls, etc., approved bitumen damp course well lapped at joints. Damp course in walls against solid floors is, wherever possible, to be level with the top of the floor, but where of necessity the damp course is below the top of the solid floor, the intervening space is to be filled with a vertical damp course of single slates set solidly in cement mortar.

65. **Piers for Rain-water Butts.** Build on 4″ concrete base two 4½″ piers in facing bricks in cement mortar 22½″ long and 9″ high to receive each rainwater butt shown.

66. **Flues and Chimney Heads.** Build the necessary corbelling over for the breasts and stacks, form all chimney flues of the sizes shown, which are in no case to be straight, with as easy bends and turns as possible and properly gather and parge the flues as the works proceed and core at completion. The chimney stacks are to have brick on edge course at their heads set back ½″, and each 9″ × 9″ flue is to be finished with a short piece of flue pipe set projecting 3″ and well flaunched up in cement mortar.

67. **Chimney Openings.** Build over fireplace openings reinforced concrete lintols; and carefully gather in the flues immediately above the openings.

68. **Stoves.** Fix and bed solid all stoves, gas fires, mantel pieces, etc., provided, and make good all round after fixing.

69. **Set Boilers and Soot Doors.** Set boilers and soot doors (provided by "Founder") and properly connect up iron flue pipes from boilers to brick flues.

70. **Rendering.** Roughly render with mortar the faces of brickwork of smoke flues passing through floors, ceilings and in roof spaces.

71. **Air Bricks.** A 9″ × 9″ terra cotta air brick is to be built in the external wall where shown of each W.C. (except first floor W.C.'s in Houses Nos. 6 and 9), each Bathroom containing a W.C., each Larder and each Bedroom with no fireplace or which contains a gas fire, also to each cupboard under stairs where against an external wall. Form proper flues for same through walls and render in cement. Build in 9″ × 3″ terra cotta air bricks where directed as ventilators to hollow ground floors (average 3 per room with hollow floors).

Note.—All air bricks to be "School Board Pattern."

72. **Tile Paving.** Floors to Halls, Kitchens, ground floor W.C.'s and Larders to be of 6″ × 6″ quarry tiles evenly bedded in cement mortar and grouted in cement. All quarries to be laid with $\frac{1}{8}$″ cement joint.

73. **Mat Sinkings.** Form mat sinkings 3′ × 2′ at each front entrance door by omitting tiles and floating the concrete smoothly and evenly in the sinking and with 1″ × $\frac{3}{16}$″ galvanised iron frame to same.

74. **Hearths.** Hearths and surrounds to fireplace interiors and hearths to gas fires generally to be of selected quarry tiles bedded and grouted in cement.

75. **Tile Window "Boards."** Except to Kitchens, Bathrooms, Larders, and Fuel Stores, the window "boards" throughout to be quarry tiles set evenly and grouted in cement. The window "boards" to Larders and Fuel Stores to be in cement and to Kitchens and Bathrooms of second quality white glazed tiles.

76. **Wall Tiling.** Provide and secure to walls in cement 6″ × 6″ second quality white glazed skirtings over sinks and draining-boards, and over lavatory basins, two courses high.

77. **Steps and Thresholds.** All to be in pressed bricks as described, set on edge and pointed in cement mortar, including internal steps in solid floors. External steps to have flat course under riser, as detailed. The paving to porch of House No. 14 to be in pressed bricks on edge, as steps, on 4″ lime concrete.

78. **Larder Bench.** Provide and fix in each Larder one 2″ concrete shelf, on one course over-sailing, built in, rendered perfectly smooth and arrises rounded.

79. **General.** Leave or form all holes and chases as necessary and make good. Do all necessary rough cutting, and everything required to complete the bricklayer's work.

TILER

80. **Tiling.** All sloping roofs to be covered with Messrs. H. J. & C. Major's, Bridgwater, Patent Treble "No. 3A" Roofing Tiles—eighty-five tiles to the square—hung to 1¼″ × 1¼″ sawn battens nailed to rafters.

81. **Verges.** To be neatly cut and to project ¾″, and to have undercloak of plain roofing tiles all bedded and pointed in cement mortar.

82. **Ridges.** Provide and fix approved half round sand-faced ridge tiles bedded down solidly in hair mortar and tilted at the gable ends. Fill in open ends with plain roofing tiles set fanwise in cement.

83. **Valleys.** Lay to valleys Major's Socket Valley Tiles and cut general tiling to rake of valley.

84. **Soakers.** Fix the lead soakers provided by " Plumber."

85. **Filleting.** Form stout cement filleting as flashings and aprons to roofs wherever abutting brickwork. Fillets to have three stands of twine fixed with nails embedded therein.

86. **Glass Tiles.** Provide and bond in with roof tiling, where directed, two approved glass tiles per house.

87. **General.** Make good all damage done to the tiling and at completion leave all roofs sound and watertight, and clean out eaves, gutters and down pipes.

CARPENTER AND JOINER

88. **Painting Joinery previous to Fixing.** All joinery specified to be painted is to be knotted and primed before leaving the joiner's shop. Bottom edges of all painted doors are to be primed and painted one coat just previous to hanging, and doors stained both sides to be stained on bottom edges. The backs of all external wood frames to be primed. The edges of all stained door panels are to be stained before framing up.

89. **Rubbing Down.** All joinery is to be thoroughly rubbed down, and sharp arrises taken off with glass paper.

90. **Sizes and Thicknesses.** Shown and described are nominal sizes and thicknesses, and $\frac{1}{16}''$ will be allowed for each wrot face.

91. **Material for Carcasing.** The timber used is to be sound Baltic fir, well seasoned and dry.

92. **Materials for Joinery.** The timber used is to be sound yellow deal of suitable joinery quality, well seasoned and dry.

93. **Timber Generally.** All timber is to be cut square free from shakes, wane or discoloured sap wood and free from large, loose or dead knots.

94. **Coating Ends of Timbers.** Ends of timber where built into walls to be coated with tar or other approved preservative.

95. **Oak.** To be English oak, free from sapwood, dead knots or other defects, and to be well seasoned and dry.

96. **Elm.** For weather boarding is to be thoroughly well seasoned.

97. **Framed Work.** To be put together with well-fitting mortice and tenon joints wedged up.

98. **Timbers.** In floors, roofs and partitions to be of the scantlings shown, those in floors and partitions spaced not more than 15″ on centres, rafters and ceiling joists not more than 20″ on centres. Ground floor joists to be 4″ × 2″, timbers in dormers and spandril cheeks of gables, also bearers for flat roofs of bay windows, 3″ × 2″. Studding behind cement panels between dormers to be 3″ × 2″.

99. **Quarter Partitions.** Between Bedroom No. 3 and W.C. in end houses, Type LII. to have 4″ × 2″ cills, heads and studs.

100. **Plates.** There are no plates for floor joists. Plates to receive rafters are 4″ × 2″. Put 2″ × 2″ plates under slope of rafters, where rafters cross the concrete partitions.

101. **Wrot Faces on Exposed Timbers.** The exposed faces of valleys and purlins to be wrot.

102. **Trimmers.** All trimmers and trimming joists and rafters are to be $\frac{1}{2}''$ thicker than common timbers, except at back of flat roof to large dormers, where they are to be 1″ thicker (4″ × 3″).

103. **Double Joists.** To be placed under all partitions.

104. **Strutting and Bridging.** Put all necessary struts, hangers and posts to roofs.

Put one row of $1\frac{1}{2}'' \times 1\frac{1}{2}''$ sawn herring-bone strutting to all upper floors, where the bearing of joists exceeds 8'.

105. **Weather Boarding.** To front gable of House No. 1 and to porch of No. 14 to be of sawn elm feather edge boarding, two out of $7'' \times 1''$ nailed on with stout composition nails, spaced 12" apart, to a 1" lap, the bottom board to be slightly tilted outwards on tile course as shown.

106. **Elm Lintol.** The lintol of porch to House No. 14 to be $9'' \times 9''$ elm adzed on exposed surfaces.

107. **Eaves.** To be formed to detail with $4'' \times 1''$ fascia boards to act as tilter, and $2'' \times 1''$ soffit brackets with $\frac{3}{4}''$ soffit boarding.

Eaves to returns of gables to be to detail with $\frac{3}{4}''$ wrot soffit boarding nailed to feet of rafters.

Put tilting fillets under eaves at back of flat dormer roofs and to sloping dormer roof where no eaves gutter.

Small spandril ends at breaks in eaves to be covered with $\frac{3}{4}''$ wrot boarding.

108. **Gutters.** Provide and fix to all gutters 1" gutter boards and bearers and all necessary tilting fillets.

109. **Dormer Cheeks, Flats, etc.** The dormer cheeks, tops of flat-roofed dormers and bays to be of 1" boarding, with edges shot for lead and all necessary firrings.

110. **Rolls.** Provide and fix all necessary $1\frac{1}{2}''$ rolls for lead.

111. **Fixing Slips or Bricks.** Hardwood fixing slips are to be built in dry in the joints of brickwork for fixing frames, etc., in walls that are not plastered, and coke breeze fixing bricks are to be built in for fixing joinery where walls are plastered.

112. **Deal Flooring.** Lay to first floors of all houses and to Living-rooms and Dining-rooms of Houses Nos. 1, 8, 9, 10, 11, 12, 13 and 14, 1" grooved-and-tongued floor boards of narrow widths, thoroughly seasoned, well jointed and securely fixed to each joist with two $2\frac{1}{4}''$ brads well punched down; all the flooring is to be well cleaned off and protected. Lay in each roof 50' super $\frac{3}{4}''$ flooring. Put properly mitred margins around hearths of fireplaces.

Note.—As soon as building operations are commenced, all floor boards to be used are to be properly stacked on the site for the free circulation of air round them.

113. **Composition Flooring.** The floors to Living-rooms of Houses Nos. 2, 3, 4, 5, 6 and 7, and Dining-room of House No. 6 to be laid with selected composition flooring, provided and laid at p.c. 6*s.* 6*d.* per square yard.

114. **Skirtings.** Put skirtings plugged to walls over all wood and composition flooring, also to Halls and ground floor W.C.'s $3\frac{1}{2}'' \times \frac{3}{4}''$ with splay chamfered tops and mitred angles.

115. **Picture Rails.** Put around the Living-rooms, Dining-rooms and Bedrooms at height to be directed $1\frac{3}{4}'' \times 1\frac{1}{4}''$ Scotia mould to detail as picture rail. To be fixed in Bedrooms only on walls going up to flat ceiling.

116. **Architraves.** To be $1\frac{3}{4}'' \times 1\frac{1}{4}''$ Scotia mould, properly mitred round all door frames and linings. This to apply to all Kitchens, but the remainder of fair face walls to have the frames neatly pointed around only.

117. **Cloak Rails.** Provide and fix in each Hall, or where directed, cloak rails $1'' \times 4''$, 4' long, chamfered and plugged to walls.

118. **Ventilators.** Provide and fix to openings for air bricks in Larders and Cupboards under stairs and W.C.'s, except first floor W.C.'s in Houses Nos. 6 and 9, a sheet of fine perforated zinc with small splayed fillet mitred round as architrave.

Provide and fix to openings for air bricks in Bedrooms and Bathrooms containing a W.C., a $\frac{3}{4}$″ deal door and frame, the door hung at side, the frame to be mitred at angles and to be $1\frac{1}{2}$″ wide. First floor W.C.'s in Houses Nos. 6 and 9 to have 12″ × 12″ square hole in ceiling, covered with perforated zinc and splayed architrave mitred round.

119. **Windows.** Throughout, including French casements, to be standard steel casements and frames (see " Founder ").

120. **Frames to Dormer Windows.** To be as detailed with 5″ × $3\frac{1}{2}$″ posts and heads rebated for steel frame and grooved for plaster, the tenoned joints to be pinned with oak pins projecting $\frac{1}{4}$″. Cills to be $5\frac{1}{2}$″ × 3″ oak sunk weathered throated, rebated for quarry tile window board and grooved for lead apron.

121. **Borrowed Light.** The borrowed light from Bedroom No. 1 in House No. 14 to be a $1\frac{1}{2}$″ square and rebated sash divided by $\frac{3}{4}$″ square and twice rebated glazing bars, hung at top to a 3″ × 2″ rebated frame, with architraves both sides all round.

122. **Internal Doors.** Generally to be $1\frac{1}{2}$″ square framed both sides, two-panel doors, the panels to be in best quality ply wood, except fuel doors leading from back lobbies, which are to have two 5″ × 1″ ledges and one brace, covered with $\frac{3}{4}$″ tongued-and-grooved and beaded boarding.

The doors from Hall to Kitchen in Houses Nos. 1, 6, 9 and 14 to be $1\frac{1}{2}$″ two-panel square frame both sides door, the lower panel in ply wood and the upper panel open and divided for glass with 1″ glazing bars and beads mitred round.

123. **Linings and Frames to Internal Doors.** Generally to be $1\frac{1}{2}$″ rebated and of full width for walls and plaster. Doors in concrete partitions to be hung to 3″ × 2″ rebated frames, grooved at back for slabs. Ledged and braced doors to have 4″ × 2″ rebated frames.

124. **Front Doors.** To Houses Nos. 1 to 13 inclusive to be $1\frac{3}{4}$″ moulded outside (by quadrant planted on) and square framed three-panel doors, the panels being vertical and of best quality well-seasoned deal. In Houses Nos. 1, 6, 9, 10, 11, 12 and 13 an opening for glass is to be left in the centre panel as shown, with glazing beads. These doors to be hung to 4″ × 3″ rebated frame grooved for cement jamb linings.

The front door to House No. 14 to be $1\frac{3}{4}$″ two-panel door, the lower panel moulded outside (by quadrant planted on) and square framed the other, the upper panel open and divided for glass with 1″ glazing bars and beads mitred round. This door to be hung to 4″ × 3″ rebated frame.

125. **Back Doors.** The back doors to be $1\frac{3}{4}$″ two-panel doors, the upper panel open and divided for glass with 1″ glazing bars and beads mitred round, the lower panel bead butt. These doors to be hung to 4″ × $2\frac{1}{2}$″ rebated frame.

126. **Weather Boards.** Plant on bottom rail of all external doors, except where in porch or lobby, 4″ × 2″ splayed weather board rebated on underside.

127. **Serving Hatch.** Between Kitchen and Dining-room of House No. 14 to be $1\frac{1}{4}$″ single-panel square framed both sides door, about 1′ 10″ × 1′ 10″, hung to 5″ × $1\frac{1}{2}$″ rebated lining with architrave mitred round both sides. The service board of same to be 9″ × 1″ with rounded nosings and returned rounded ends both sides.

128. **Coal Hatch Doors.** The coal hatches where shown (Houses Nos. 11 and 12) to have ledged doors (1′ 10″ × 2′ 4″) with 1″ ledges covered with 1″ tongued-and-grooved and beaded boarding hung to $3\frac{1}{2}$″ × $2\frac{1}{2}$″ rebated frame with 3″ × $2\frac{1}{2}$″ rebated oak cill.

129. **Trap Doors.** Provide in first floor ceiling of each house, where directed, a deal ledged trap-door, 2′ × 3′, with 1″ beaded lining, and properly trim ceiling joists for same.

130. **Cupboards.** Form cupboards, where shown, in concrete slab partitions, with 3″ × 2″ rebated door frames, grooved at back for slabs, and hang 1¼″ doors (to match and line up with doors of rooms) in same and provide 11″ × ¾″ shelf and ¾″ × 6″ chamfered hanging rail returned at ends as bearer to shelf. Cupboards to run from floor to ceiling. Mitre architraves, as described, round outside of frames, but nothing inside. Skirting to go round insides of cupboards.

131. **Linen Cupboards.** To be formed as last, except to Houses Nos. 3, 4, 6, 7, 8 and 9, which are to be built on top of handrail to landing (the capping of handrail being omitted for same) with 1″ grooved-and-tongued and beaded [on soffit] bottom, with rounded nosings all round except next wall, and ¾″ grooved-and-tongued and beaded sides in half batten widths, on 2″ × 2″ wrot framing, all junctions between boarding and plaster to be covered with ¾″ quadrant.

The doors to linen cupboards to be 1¼″ square framed panel doors to match adjacent doors; the six cupboards on handrail to have dwarf one-panelled doors at ceiling level, as shown. Provide and fix in each linen cupboard two tiers of ¾″ slat shelving on proper bearers, and fix bearers for hot water tank.

132. **Staircases.** Construct the staircases with 1¼″ treads with rounded nosings and ¾″ risers glued and blocked with 1¼″ strings framed to newels to detail. Newels, strings, balusters, lattice work, handrails, etc., to be to detail. Provide and fix ¾″ linings to well hole grooved for plaster.

133. **Mop Stick Handrail.** Provide and fix up wall at side of stairs, where shown, in Houses Nos. 1, 7 and 8, 1¼″ mop stick handrail with rounded ends secured by iron handrail, brackets, screwed to plugs in wall not more than 4′ apart.

134. **Landings.** Form landings with 1″ tongued-and-grooved boarding on bearers with rounded nosing and 1¼″ wall string. Put rounded nosing to top landing.

135. **Bulkheads.** Over stairs, where shown, to be formed with 4″ × 2″ bearers with slab partition walls, and where the bulkheads form table tops to be covered with 1″ grooved-and-tongued flooring with rounded nosings, and with skirting next wall as described to floors.

136. **Mantel Pieces.** Provide and fix round fireplaces with coal fires, the following selected mantels—

Living-room . . p.c. £3 10s. each.
Bedroom No. 1 . . p.c. £2 15s. each.

137. **Shelves over Gas Fires.** Provide and fix over each gas stove 6″ × 1″ mantel shelf with moulded front and returned edges on shaped brackets to detail.

138. **Dressers.** To be to detail with drawers and doors to lower part and open shelves to upper part. Dressers to Houses Nos. 1 and 14 are 3′ 6″ long, and to Houses Nos. 2, 3, 4, 5, 6, 7, 8 and 9, 3 ft. long.

139. **Kitchen Cupboards.** In Houses Nos. 10, 11, 12 and 13 there are no dressers, but cupboards are to be formed in recesses as shown with 1″ cupboard fronts with single-panel doors in two heights and with two 11″ × ¾″ and four 9″ × ¾″ shelves on bearers in each cupboard, the 9″ shelves grooved for plates.

140. **Tables.** Provide 1″ deal table tops with rounded nosings on proper bearers and brackets in Kitchens of Houses Nos. 10 and 13 as continuations to draining boards.

141. **Shelving.** Provide and fix round two walls of each Larder as shown one tier of 1″ × 11″ shelving, and two tiers of 1″ × 9″ shelving all on proper bearers and brackets.

Provide and fix also in Kitchen and elsewhere where directed 15 sq. ft. per house of wrot deal shelving on proper bearers and brackets.

142. **Meter Brackets.** Provide to each house one pair of wrot gallows brackets, plugged to wall, for gas meter.

143. **Draining Boards.** Provide and set at each side of sink 1¼″ elm ledged and grooved draining board fixed on deal bearers and gallows, brackets where required. The draining boards to be notched over bearers and left removable.

144. **Pipe Boards.** Run boards for pipes, etc., as required and screw floor boards, etc., where necessary for access to pipes.

145. **Cover to Cistern.** The cistern in roof to be covered with ledged cover.

146. **Boards for Flushing Cisterns.** Provide ¾″ wrought deal boards for flushing cisterns with chamfered edges.

147. **Coal Boards.** Provide to each Fuel Store three 1¼″ × 9″ coal boards to slide in rebated runners nailed to door frame.

148. **General.** Provide and fix, ease and strike all necessary moulds for concrete beams and lintols, and provide all templates and turning pieces required. Provide and fix all blocks, plugs, etc., required and do everything necessary to complete the carpenter's and joinery work.

IRONMONGERY

149. All ironmongery is to be selected by the Architect.

All butts to be of double pressed steel. All ironwork to be *dull* black. No japanned black will be approved.

150. *Provide and fix the following :—*

Front doors	each	1 pair 4″ butts.
	,,	1 night latch, p.c. 8*s.*
	,,	1 combined postal knocker and letter plate, p.c. 7*s.* 6*d.*
	,,	1 bolt, p.c. 1*s.* 6*d.*
Back doors	each	1 pair 4″ butts.
	,,	1 rim lock, p.c. 5*s.* 6*d.*
	,,	1 set furniture, p.c. 3*s.* 6*d.*
	,,	1 bolt, p.c. 1*s.* 6*d.*
Doors to coals, where ledged .	each	1 pair 18″ cross garnetts.
	,,	1 Norfolk latch, p.c. 3*s.*
	,,	1 rim dead lock, p.c. 4*s.* 6*d.*
Ditto, where panelled (in Kitchens)	each	1 pair 3″ butts.
	,,	1 rim dead lock, p.c. 4*s.* 6*d.*
	,,	1 knob, p.c. 9*d.*
Larder doors	each	1 pair 3″ butts.
	,,	1 rim dead lock, p.c. 4*s.* 6*d.*
	,,	1 knob, p.c. 9*d.*
Living-room, Dining-room, Kitchen, and Bedroom doors.	each	1 pair 3″ butts.
	,,	1 rim lock, p.c. 5*s.* 6*d.*
	,,	1 set furniture, p.c. 3*s.* 6*d.*

Bathroom and W.C. doors . .	each	1 pair 3″ butts.
	,,	1 rim latch and furniture, p.c. 7*s.* 6*d.*
Cupboard doors (including linen cupboards and cupboards under stairs).	each	1 pair 3″ butts (doors over 5′ in height).
	,,	1 pair 2½″ butts (under 5′ in height).
	,,	1 cupboard lock with thread escutcheon, p.c. 1*s.* 6*d.*
	,,	1 knob, p.c. 9*d.*
Dwarf ditto at ceiling level to six cupboards on handrail.	each	1 pair 2½″ butts.
	,,	1 Bale's ball catch, p.c. 1*s.* 6*d.*
	,,	1 knob, p.c. 9*d.*
Serving hatch, House No. 14 . .		1 pair 2½″ butts.
		1 Bale's ball catch, p.c. 1*s.* 6*d.*
		2 knobs, p.c. 9*d.* each.
Coal hatches	each	1 pair 14″ × garnetts.
	,,	1 6″ barrel bolt, p.c. 1*s.* 6*d.*
Trap-doors	each	1 pair 14″ × garnetts.
Dressers and Kitchen cupboards	each door	1 pair 2½″ butts.
	,,	1 Bale's ball catch, p.c. 1*s.* 6*d.*
	,,	1 knob, p.c. 9*d.*
Dresser drawers	each	1 drawer pull, p.c. 6*d.*
Borrowed light in House No. 14 . .		1 pair 2½″ butts.
		1 12″ black iron casement stay with two pins.
Ventilator doors in Bedrooms and Bathroom.	each	1 pair 1½″ butts.
	,,	1 small black iron knob.
	,,	1 short length of chain.

151. **Hooks.** Four wardrobe hooks, p.c. 7½*d.* each, to be fixed to pin rails in each Bedroom cupboard.

Six hat and coat hooks, p.c. 1*s.* each, on rail in Hall.

152. **Dresser Hooks.** Provide and fix one dozen dresser hooks in each house where directed.

153. **Screws.** Provide all necessary screws for the above.

154. **Coat Hanger Rails.** Fix across the full length of each Bedroom cupboard a length of ⅝″ black electric cable tubing let into shelf bearers at each end.

155. **Water Bars.** Fix at back of steps to external doors a 1″ × $\frac{3}{16}$″ galvanised iron water bar.

156. **Iron Dowels.** Fix at feet of all frames abutting brick steps or concrete floors short lengths of gas barrel as dowels and run with cement.

157. **Dust Bins.** Provide one approved galvanised iron sanitary dust bin 18″ diameter and 24″ high, complete with cover, to each house.

FOUNDER AND SMITH

158. **Eaves Gutters.** To be 4½″ cast-iron half round gutters, the joints made in red lead and bolted, fixed on approved iron brackets, two to each 6′ length of gutter, screwed to fascia. Provide all requisite angles, stopped ends, which are to be of iron, and outlets with nozzles cast on.

159. **Fall Pipes.** To be 2½″ diameter cast-iron rainwater pipes, with ears cast on and red lead joints, and fixed with 3″ pipe nails to stand 1″ clear of wall with gas barrel distance pieces.

Pipes to have all necessary off-sets, bends and swan necks and shoes at feet to discharge over gullies or rainwater butts as shown.

160. **Rainwater Heads.** Provide and fix on front elevation of Houses Types L. and LI., to receive water from valley gutters, rainwater heads, p.c. 15*s.* each (4 in all), and connect to fall pipes.

161. **Rainwater Butts.** Provide and set on brick piers (described in "Bricklayer") where shown approved large Cooper's oak barrels, with ledged cover with handle, and wooden beer tap for draw off, also $1\frac{1}{4}$" diameter galvanised steam tubing standing vertically in butt as overflow with back nut connection to butt and discharging into gully beneath.

162. **Windows.** The windows throughout, including French casements and fixed fanlights over front doors where shown, to be steel casements and frames, painted two coats of anti-corrosive paint, all to be complete with projecting hinges, black iron fittings and curtain rod brackets, p.c. £235. 6*s.* 9*d.*, the lot complete, delivered to Welwyn Garden City Station.

Note.—French casements to have hooks and eyes for holding open, the eyes to be screwed to oak plugs in brickwork.

163. **Portable Boilers.** Provide and set where shown in Kitchen of every house, except Nos. 2 and 5, selected portable boiler complete with base, stoking tools and all necessary iron flue pipe, p.c. £10 complete, and allow for connecting to brick flue and making good all work disturbed. Connect to hot water pipes (see "Hot Water Fitter").

164. **Check Plate.** Where portable boilers stand in chimney opening (in Houses 3, 4, 6, 7, 8 and 9) provide and fix over opening a $\frac{1}{8}$" wrought-iron check plate with hole for iron flue pipe, properly made good to same, and with sliding soot door.

165. **Soot Doors.** Provide and build in to each brick flue from other boilers (Houses Nos. 1, 10, 11, 12, 13 and 14) 9" × 6" soot door and frame.

166. **Fireplace Interiors.** Provide and fix in Living-room and one Bedroom in each house, selected plain fireplace interiors, p.c. £2 each.

PLUMBER

EXTERNAL.

167. **Lead.** To be the best milled lead, and of the full weight specified.

168. **Soakers.** In all cases where the raking line of tiling meets brickwork or walling, 3 lb. lead soakers are to be fixed one to each tile, turned up 3" against the walls and lying 5" under the tiling, and to be 3" in addition to the full gauge of the tiles.

169. **Dormer Tops, Cheeks, etc.** Dormer tops, cheeks, tops of bay windows, etc., to be covered with 4 lb. lead, properly dressed under tiles and over front edge, close copper nailed, and dressed to rolls, etc. Where against brickwork the lead is to be dressed at least 3" up face of same, wedged and pointed. Provide one soldered dot to each dormer cheek. Form steppings, wedge and point same to edges of spandril cheeks where meeting brickwork. Fix 4 lb. lead saddle at intersection of ridge tile with slope of roof.

170. **Gutters.** All gutters to be of 4 lb. lead, dressed up at least 6" under tiles and 6" up face of brickwork, and properly dished to outlets.

171. **Aprons under Dormers.** Dormers with cills above roof tiling to have 4-lb. lead aprons dressed into groove in underside of cill and bedded in white lead and dressed 6" over tiles.

INTERNAL.

172. **Pipes.** All service and supply pipes to be best welded wrought-iron galvanised steam barrel, put together with all the necessary bends, tee pieces, connectors, etc. ; elbows are not to be used except where quite unavoidable, and then to be of the round description. Where it is necessary to form bends or sets in the line of piping, these, when easy, are to be made without heating the pipe, when sharp to be made before galvanising. The pipes to be screwed, socketed, and put together with red lead. Connections with cistern to be made with a long thread and back nuts.

173. **Water Service.** Give notice to Welwyn Garden City, Ltd., and pay their charge of £10 for bringing 1½″ water main to the point shown on drawings. Make connection to this and run therefrom service, in trench not less than 2′ deep, of the sizes shown, with ½″ branch to each house.

174. **Rising Main.** Carry ½″ rising main up to and provide 40 gallon approved galvanised iron riveted ⅛″ plate cistern fixed on bearers in each house, and take ½″ branch pipe from rising main direct to sink with ½″ screw-down nickel-plated " Easy-clean " bibcock, stamped " COLD."

175. **Down Supply.** From cistern run ¾″ down supply to bath with ½″ branches to lavatory basins and flushing cisterns. Provide also ¾″ down cold supply to feed the hot water system.

176. **Stop Cocks.** Provide and fix approved brass screw-down stop cock on each rising main where it enters the house and on each supply pipe.

177. **Ball Cock.** Provide and fix approved ball cock with copper ball to cistern.

178. **Warning Pipe.** Provide and fix ¾″ warning pipe connected to cistern, discharging in an exposed position outside.

179. **Wrapping Pipes.** Completely cover all pipes in exposed positions with stout hair felt bound with tarred twine.

180. **Wastes.** From bath, sink and lavatory basins take 1¼″ strong lead waste pipe, with wiped joint to trap of fitting bent as required passing through wall to discharge over channel of gully or into cistern heads as shown.

The external wastes to the baths and lavatory basins on first floor are to be 2″ cast iron, jointed in red lead and tow, with selected cistern heads at top, p.c. 10s. each, to receive the discharge pipes at the top and shoe at bottom to discharge over channel of gully.

181. **Soil and Ventilating Pipes.** To be 3½″ internal diameter heavy cast iron dipped in Dr. Angus Smith's Solution, fixed with rose-headed nails and kept 1½″ clear of wall with barrel distance pieces, all joints to be caulked and run with molten lead. The ventilating pipes to be carried up 3′ above adjacent windows, and where necessary through the eaves and roof tiling and out into open as shown, flashed with a 4-lb. lead tile, and terminated with a wire balloon grating. The foot of soil pipe to be connected direct to the salt-glazed-ware bend and caulked with gaskin and jointed in Portland cement and sand gauged 1 to 3. Provide and fix the necessary junctions and branches and connect the W.C.'s.

182. **W.C.'s.** To be selected white inside and out pedestal closets with cast-iron water waste preventor, flush pipe, brass chain and china pull and polished hardwood seat, p.c. £3 each set complete. W.C.'s in Houses Nos. 11 and 12 to have Twyford's " Letchworth " closets, with rodding eye on trap, the set complete in these cases being p.c. £3 10s Every flush pipe is to be jointed watertight to the

flushing arm of the W.C. Put ½″ lead overflow to the water waste preventor carried through the external wall with a projection of 6″.

Note.—The valves of all water waste preventors are to be carefully adjusted so as to give an easy and full two-gallon flush.

183. **Sinks.** Provide and fix 24″ × 18″ × 10″ cane and white sink with trapped waste plug and chain in each Kitchen fixed on two iron cantilever brackets built into wall.

184. **Lavatory Basins.** To be selected glazed stoneware with overflow, plated waste, plug and chain and trap, and " Easy-clean " nickel plated hot and cold water taps, and to be fixed on brackets, p.c. 50*s.* each complete.

185. **Baths.** To be selected cast iron white porcelain enamelled, set on feet with wide flat roll, with overflow, plated waste, plug and chain, trap and " Easy-clean," nickel-plated hot and cold taps, p.c. £6 10*s.* each.

186. **Overflows to Baths.** Provide and connect to overflow of each bath 1¼″ lead overflow pipe, carried through wall to discharge into open.

187. **Testing.** Test the whole of the internal plumber's work, water supply and fittings, and leave in perfect order at completion.

HOT WATER FITTER

188. **Boilers.** See " Founder and Smith " and " Gas Fitter."

189. **Safety Valve.** Approved safety valve to be fitted on main flow pipe as near to boiler as possible

190. **Tank.** Provide and fix on proper bearers in each linen cupboard or elsewhere where directed, an approved galvanised iron riveted hot water tank (25 gallon) with bolted handhole cover, flow and return openings and hole for expansion pipe.

191. **Pipes.** Run from boiler to hot water tank in first quality galvanised steam tubing 1″ flow and return pipes with all proper connections, elbows, bends, T's, etc., with ¾″ branch to bath and ½″ to lavatory basin and sink. ½″ screw-down nickel-plated " Easy-clean " bibcock stamped " HOT " to be fixed over sink.

192. **Expansion Pipe.** From hot water tank carry ¾″ expansion pipe to discharge over cold water cistern in roof.

193. **Cold Water Supply.** Connect up cold water supply (see " Plumber ") to hot water system as directed.

194. **Testing.** Test the whole of the system to the satisfaction of the Architect and leave in perfect working order at completion.

GASFITTER

195. **Gas Company.** Give necessary notice to the Hatfield Gas Co., with whose requirements the gas services are to comply, and provide the total p.c. sum of £48, to be paid to them for running the service in trench to meter position in each house. From meter position run gas services in barrel tubing to the following points and connect to fittings :—

⅝″ to each cooker.
½″ to each gas fire.
⅝″ to gas boilers in Houses Nos. 2 and 5.

196. **Gas Cookers.** Provide and set in Kitchen of each house, where shown, selected gas cooker, p.c. £9.

197. **Gas Fires.** Provide and set in each Dining-room and Bedroom, where shown, selected gas fire interior, p.c. 45*s.* complete with brass tap.

198. **Gas Boilers.** Provide and fix in Kitchen of Houses Nos. 2 and 5, on a pair of steel T's built into wall, selected gas circulating boiler, complete with flue pipe (to be carried through wall) with mushroom cap, p.c. £10 each complete.

199. **Testing.** Allow for testing the gas service to the satisfaction of the Architect and make good any defects.

ELECTRICAL ENGINEER

200. **Connection to Main.** Give notice to the Welwyn Garden City Electricity Supply Co., Ltd., and provide the p.c. sum of £5 per house to be paid to them for connection to main cable and for bringing the electric service to a selected point in each house for the meter.

201. **Wiring.** From electricity meter (supplied by Electricity Company) run continuous lead covered wiring in accordance with the Regulations and to the approval of the Electricity Company, complete with switches, cut-outs, flexes and holders for lamps to the following points.

All switches and lamp holders to be oxidised black, the switches to be of approved semi-flush pattern on wood bases.

		Ceiling points.	Switch wall plugs.
Houses Nos. 1, 6, 9	each	10	2
Houses Nos. 2, 5, 11, 12	,,	8	2
Houses Nos. 3, 4, 7, 8, 10, 13 . . .	,,	9	2
House No. 14	,,	12	2

202. **Two-way Switching.** One ceiling point in each house (*i.e.*, on landing) is to have two-way switching.

203. **Testing.** Allow for testing the electric light installation to the satisfaction of the Architect and the Electricity Company, and make good any defects.

PLASTERER

204. **Lime.** To be well burnt stone or chalk lime, run into putty at least one month before using.

205. **Sand.** To be clean, sharp pit sand, free from earth, loam or saline materials and well screened.

206. **Hair.** The coarse stuff throughout is to have 1 lb. of good long hair, free from grease or other impurities, well beaten up and mixed with every three cubic feet of the coarse stuff. If mill ground coarse stuff is made use of, the hair is to be added after grinding.

207. **Laths.** To be lath and half.

208. **Counter-Lathing.** Provide and fix all counter-lathing necessary.

209. **Proportions of Materials.** For the coarse stuff one part of lime is to be well mixed with three parts of sand by measure, and in this is to be incorporated the hair as described.

For the setting coat not less than one part of lime putty is to be well mixed with one part of clean sand.

210. **Ceilings.** Lath, plaster, float and set all ceilings and soffits, including soffits of stairs and ceiling of porch to House No. 14.

211. **Partitions, etc.** Lath, plaster, float and set both sides of quarter partitions, and inside of studdings to dormer cheeks, panels between dormers, etc.

212. **Walls.** Render and set the whole of interior walls, and concrete partitions, except in

Kitchens, Larders, Fuel Stores and Cupboards under stairs, and passageways between houses.

213. **Salient Angles.** The external angles throughout the plastered walls are to be slightly rounded and the first coat of plastering thereon gauged with Portland cement.

214. **Cement Architraves, etc.** Surrounds to all front doors (except House No. 14) and jamb linings, architraves to passageway openings and to openings in walls connecting the blocks of four, also the jamb linings to same, all to be in Portland cement and sand (1 and 3) to detail.

215. **Cement Panels.** The panels connecting dormers where shown to have expanded metal nailed to studding and to be rendered in Portland cement and sand (1 and 3) $\frac{3}{4}$" thick, finished perfectly smooth.

216. **General.** Make good all other trades and leave the plasterer's work perfect at completion.

GLAZIER

217. **Sheet Glass.** Glaze all windows (except the following), also panels in front doors and fanlights, with 15 oz. sheet glass.

218. **Perforated Zinc.** Glaze the two top panels of each larder window with fine perforated zinc.

219. **Arctic Glass.** Glaze lower squares of larder windows, panels in back doors, in doors leading from Hall to Kitchen and borrowed lights with Arctic glass.

220. **Generally.** All wooden rebates are to be primed, all glass well puttied and back puttied, and sprigged where required to wood. Glazing in front and back doors to be bedded in wash leather.

PAINTER

221. **Paint.** All paint, except finishing coat, to be of best genuine English white lead, and best quality linseed oil and pigments, well ground and mixed with driers, as required. The finishing coat of all work, unless otherwise specified, to be rubber paint, obtained from Messrs. Mander Bros., Wolverhampton. All paintwork is to be well rubbed down before each coat is applied, and all tints to be approved by the Architect.

222. **Ironwork.** The whole of the ironwork, external and internal, is to be cleaned and painted two coats before fixing (this includes the steel windows which will be delivered painted two coats), and one coat of oil colour and one coat of rubber paint after fixing. Eaves gutters are to be painted inside and out. Soil pipes, which are coated with Dr. Angus Smith's Solution, are to be given one coat of knotting before the paint is applied.

The above includes painting to water waste preventors and outside of baths.

Gas service pipes to be painted one coat of oil colour and one coat rubber paint where directed.

223. **Hinges.** All hinges to stained doors to have two coats of dull black.

224. **External Woodwork.** (Except elm) to be knotted and primed before leaving the joiner's shop, and after fixing, stopped with hard stopping, and painted two coats of oil colour and one coat of rubber paint.

225. **Internal Woodwork.** All (except mantel pieces) to be knotted, stopped and well coated with Major's Solignum of approved tint, and once rubbed down with Solignum polish. This includes all treads and risers to stairs, also landings, including top landings.

Interiors of cupboards not to be stained except doors, frames, linings and edges.

226. **Mantel Pieces.** To be knotted, primed, stopped and painted two coats of oil colour and one coat of rubber paint.

227. **Handrails.** To be stained and polished.

228. **Bathroom Dado.** Paint walls of bathrooms 4′ high, with neatly cut-in top edge, with Messrs. Blundell, Spence & Co.'s Petrifying Liquid. The first coat to be "Flat Drying Transparent Petrifying Liquid," the second coat "Petrifying Liquid Undercoating," and the third coat "Petrifying Liquid Enamel."

229. **Cylinder and Pipes.** The hot water tanks, where not in linen cupboards, and exposed pipes to be cleaned down and painted one coat of approved metallic paint.

230. **Whitening.** Twice whiten all ceilings and soffits.

231. **Distempering.** Twice distemper with approved proprietary washable distemper all internal walls and partitions, also back lobbies and passageways between houses, also all external exposed concrete and cement work.

Note.—The distempering to walls and second coat of whitening to ceilings to be postponed until the Architect's instructions for same to be done are given.

232. **General.** Clean down all work at completion, clean windows inside and out, also all pavings and floors. Clean all stoves and black same where required; clear away rubbish and surplus materials, wash out sanitary fittings and traps, and leave all parts of the premises clean and fit for occupation.

BILL OF QUANTITIES

ESTIMATE of WORK REQUIRED TO BE DONE in the ERECTION and COMPLETION of FOURTEEN HOUSES in a CLOSE on the North-Eastern side of HIGH OAKS ROAD, WELWYN GARDEN CITY, HERTS.,

for

LABOUR SAVING HOUSES, LTD.

Messrs. HENNELL and JAMES,
Architects,
19, Russell Square,
London, W.C. 1.

December, 1923.

PRELIMINARIES	£	s.	d.
The Contractors are requested to visit and inspect the site previous to tendering ..			
The Drawings and Specification may be seen at the Architect's Office			
The Conditions of Contract will be those issued by the Royal Institute of British Architects, and the Contractor is to allow here any sum he may consider necessary in respect to the Clauses contained therein and not hereinafter referred to			
The whole of the works are to be carried out under the direction of the Architect and to his entire satisfaction			
The Contractor is to give all requisite notices and descriptions to Local Authorities and pay all fees legally demandable			
Supply all labour, materials, scaffolding, plant, temporary enclosures, sheds, covering and protection of materials, tarpaulins, screens, and all things necessary for the due and proper completion of the works			
The Contractor is to set out the Works and be responsible for their accuracy. No claim for extra work, occasioned through mistakes in setting out, will be allowed			
Provide water and lighting for the use of the works, including Sub-Contractors, and pay all fees and charges in connection with same			
Provide watching and everything else necessary by day and night for the protection and security of the works and the public			
All ½" scale and full size details necessary will be supplied to the Contractor, who must apply for same before commencing the work			
The whole of the Drawings relating to these Works are the property of the Architect and shall be returned to him on the completion of the Contract			
A competent Foreman is to be kept constantly on the Works while in progress, who shall keep on the Works copies of all Drawings, Specifications and Instructions and to whom orders may be given in the absence of the Contractor			
Continued	£		

	£	s.	d.
Continued			
Provide proper sanitary accommodation for the use of the workmen, keep in a thoroughly clean and orderly condition and clear away at the completion of the Works			
Allow for insuring against fire with an approved office, for the full amount of the Contract, in the joint names of the Employer and Contractor, when each house is erected to the upper level of ground floor surface concrete and as set forth in the Contract, and deposit the Policy with the Architect. The Insurance is to be kept in force for the full amount of Contract until all the buildings are delivered up			
All Provisions included hereafter, whether in money or otherwise, and all prime cost items (referred to by the initials " P.C.") are to be dealt with as directed by the Architect and deducted in whole or part, together with the profit added, if not directed to be used			
All prime cost items are to be considered as strictly nett after deduction of all Trades discounts, but not cash discounts up to 2½ per cent., and are to include for carriage to Welwyn Garden City Railway Station unless otherwise described. The Contractor is to add for fixing in all cases and for returning empties carriage paid, and for cartage on items delivered to Railway Station			
The Contractor is to add to all prime cost items for any profit he may desire ..			
The Works comprised in Houses Nos. 1 to 5 inclusive are to be commenced within three days after the order therefor has been given in writing by the Architect, and are to be fully completed within five calendar months from the date of such order to commence. Houses 6 to 9 inclusive within a further period of two calendar months, and Houses 10 to 14 within the next two calendar months, subject to liquidated damages of £2 per week per house, for every week or such extended time as may be granted by the Architect, that it takes to complete any house			
Payments on account will be made from time to time on the certificate of the Architect, at the rate of 80 per cent. on the value of the work executed until the retention in hand amounts to 10 per cent. of the contract sum and afterwards at the full value of the work executed. A further payment of 15 per cent. of the Contract sum will be made when the Works are certified to be fully completed, and the remainder at the expiration of the term of six months' maintenance, as set forth in the Contract			
The Contractor when applying for a Certificate, is to furnish the Architect with an approximate detailed statement, based on the original Estimate			
The Contractor shall be liable for and make good all defects arising from faulty or defective workmanship or materials, which may appear in the work within six months of the date of the Architect's certificate of completion, but the Employer shall, notwithstanding, be at liberty to use the Works during the above-mentioned period			
Provide for contingencies, the sum of one hundred and forty pounds	140		
The Contractor is to make good all damage to the Works from whatever cause arising and to hold the Employer harmless from any claim for injuries to persons or damage to property			
The Contractor is to hold the Employer harmless against any claims or expenses whatsoever, that may arise in connection with these Works, under any Act of Parliament, including those relating to Workmen's Compensation, Health or Unemployment			
The Contractor is not to sublet the Works or any part thereof without the written consent of the Architect			
Continued	£		

	£	s.	d.
Continued			
The Contractor must deposit, after the Contract is signed, a properly moneyed out and signed copy of these Bills of Quantities. All variations from the Contract shall be measured and valued at the prices therein contained or at prices *pro rata* thereto			
The Architect shall have power to increase, diminish or vary the work, and the Contractor, before commencing such variation, shall obtain an order in writing. No extra will be allowed unless executed under a written order			
Allow for clearing and carting away all surplus materials and rubbish as it accumulates and at completion			
Provide any necessary temporary track or tracks as may be required from the road on to the Site, and clear away at completion (The short approach Road from High Oaks Road to the S.W. boundary of site will be made by the Welwyn Garden City Co., Ltd.)			
The whole of the measurements are nett as fixed in work and no allowance made for waste			
PRELIMINARIES. CARRIED TO SUMMARY	£		

EXCAVATOR AND CONCRETOR

The prices for excavations are to include for levelling and well ramming bottoms for concrete					
Allow for keeping trenches clear of water					
The lime is to be well burnt Blue Lias lime of approved quality					
The Portland cement is to be of a quality which complies with the current Specification adopted by the British Engineering Standards Committee, slow setting quality to be used generally					
The sand to be clean, coarse sharp pit sand free from loam, clay and other impurities					
The foundation concrete to be composed of one part of lime, five parts of approved gravel or other suitable material capable of passing a 2″ ring, all to measure, with sufficient sand to fill up all interstices, well mixed on proper boarded platform, laid in trenches and carefully levelled					
The surface concrete to be composed of one part of Portland cement to seven parts of aggregate, and sand as last described					
The concrete for lintols to be composed of one part of Portland cement and five parts of coke breeze (average 3″ nuts)					
The concrete for beams to be composed of one part of Portland cement, two parts of sand and three parts of fine ballast					
Yards.	Feet.				
1257	—	—	Sup.	Dig vegetable earth and surface soil average 6″ deep and wheel and deposit on site where directed	
120	—	—	Cube.	Excavate over surface under the foregoing and wheel and fill in to make up levels under floors or around buildings, including forming slopes to excavation or filling	
176	—	—	,,	Excavate to surface trenches part returned, filled and rammed around foundations, the remainder wheeled and filled as last described	
Continued					£

Yards.	Feet.			*Continued*	£	s.	d.
192	—	—	Run.	Excavate trench for water pipe not less than 2′ deep and return, fill and ram earth			
3	—	—	Cube.	Hard core filled and rammed between fender walls and levelled up for hearths			
105	—	—	,,	Lime concrete (1—5) as described in foundations			
—	161	—	,,	Ditto, in small quantities under steps, including any temporary boarding required			
701	—	—	Sup.	4″ Portland cement concrete (1—7) as described over surface, levelled on top and including levelling and well ramming ground			
8	—	—	,,	4″ ditto in hearths			
8	—	—	,,	4″ ditto, one part of cement and five parts fine ballast in hearths in wood floors, including centering left in and fillets for lathing to			
78	—	—	,,	4″ Portland cement concrete (1—6) laid to slight falls and finished with 1″ Portland cement (1—2), floated face as external paving. (*Provisional*)			
	22	—	,,	Making up back hearth in fine concrete			
	65	—	,,	2″ Portland cement concrete shelf with exposed faces and edge rendered smooth and rounded arrises and fixing on brick oversailing (elsewhere measured)			
	144	—	Run.	Portland cement and clinker concrete 3″ thick on half-brick party wall under roof tiling			
	—	No. 11.		End wood newel let into concrete and making good ..			
	54	—	Run.	8½″ × 9″ cast concrete beam as described and hoisting and fixing at first floor level. (In No. 6)			
				LINTOLS.			
	561	—	Run.	4½″ × 6″ cast coke breeze concrete lintols as described, including temporary casings and hoisting and setting. (In No. 158)			
	9	—	,,	6″ × 6″ ditto. (In No. 2)			
	10	—	,,	7½″ × 6″ ditto. (In No. 2)			
	68	—	,,	9″ × 6″ ditto. (In No. 16)			
	18	—	,,	13½″ × 6″ ditto. (In No. 4)			
	10	—	,,	22½″ × 6″ ditto. (In No. 2)			
	24	—	,,	3″ × 9″ cast coke breeze concrete lintols, as described cast *in situ*, including temporary shuttering and strutting. (In No. 4)			
	472	—	,,	4½″ × 6″ ditto. (In No. 133)			
	220	—	,,	4½″ × 9″ ditto. (In No. 36)			
	374	—	Sup.	Facing up exposed surface of lintol with Portland cement trowelled smooth to receive distemper, including arrises.			
				Continued	£		

				£	s.	d.
			Continued			
			PORTLAND CEMENT CONCRETE, composed of one part of cement, one part of sand and two parts of very fine ballast, cast to detail and built in as the work proceeds and bedded in cement mortar, including molds and templates and finishing exposed surfaces perfectly smooth			
Feet. 28	—	Run.	String course, size $4\frac{3}{4}'' \times 9''$, in short lengths, built in to project $\frac{1}{4}''$ from face of wall, fair on front and returns ..			
—	No. 4.		2″ pier cap, size 10″ × 5″, fair on top and three edges and $\frac{1}{2}''$ lower returns			
—	,, 2.		2″ ditto, size 10″ × 10″, fair on top and all edges and ditto ..			
—	,, 6.		Hood, extreme size 6′ 9″ × 3′ × $4\frac{1}{2}''$ thick, stop weathered on top and moulded on front edge and returns, including building in 9″ at back and making good facings ..			
			PARTITIONS			
Yards. 269	—	— Sup.	2″ Portland cement and breeze concrete (1—5), cast slab partition with joggle joints and fixing and setting in cement mortar			
2	—	— ,,	$2\frac{1}{2}''$ ditto measured nett, including all raking, cutting and waste. (In No. 1 Gable)			
15	—	,,	9″ hollow wall of $2\frac{1}{2}''$ slab partition as described, with 4″ cavity and No. 8 galvanized iron ties built in, including all raking, cutting and waste. (In No. 1 Gable) ..			
82	—	Run.	Raking, cutting and waste on 2″ partition			
6	—	,,	Extra labour and material, bonding ditto at splayed angle ..			
—	No. 26.		Forming door opening in partition (partition deducted) ..			
			EXCAVATOR AND CONCRETOR. CARRIED TO SUMMARY	£		
			DRAINS			
			Drain pipes, bends, channels, etc., are to be the best quality salt glazed stoneware with socket joints			
			No bends or junctions to have a radius of less than 10″			
			All drains are to be laid straight and true from point to point and to even and regular falls, neatly joined in Portland cement and sand in equal proportions and the inside of pipes carefully cleaned out, leaving a clear and unobstructed waterway			
			Portland cement and sand to be as previously described			
			Bricks, brickwork and cement mortar to be all as described in *Bricklayer*			
Feet. 18	—	Run.	3″ socketed stoneware drain pipe jointed in Portland cement and sand (1 and 1), and excavation average 1′ 6″ deep, including returning, filling and ramming earth and wheeling and spreading surplus on site and any planking and strutting required			
86	—	,,	3″ ditto, average 2′ 0″ deep ditto			
75	—	,,	3″ ditto, average 2′ 6″ deep ditto			
5	—	,,	3″ ditto, average 3′ 0″ deep ditto			
			Continued	£		

Feet.				£	s.	d.
			Continued			
28	—	Run	4″ drain pipe, average 1′ 6″ deep as last described			
178	—	,,	4″ ditto, average 2′ 0″ deep ditto			
202	—	,,	4″ ditto, average 2′ 6″ deep ditto			
240	—	,,	4″ ditto, average 3′ 0″ deep ditto			
92	—	,,	4″ ditto, average 3′ 6″ deep ditto			
56	—	,,	4″ ditto, average 3′ 9″ deep ditto			
292	—	,,	4″ ditto, average 4′ 0″ deep ditto			
85	—	,,	4″ ditto, average 4′ 6″ deep ditto			
87	—	,,	4″ ditto, average 5′ 0″ deep ditto			
120	—	,,	6″ ditto, average 4′ 0″ deep ditto			
	No. 22.		Extra to 3″ bend			
	,, 45.		Ditto, 4″ ditto			
	,, 4.		Extra to 3″ junction			
	,, 37.		Ditto, 4″ ditto			
	,, 2.		Ditto, 3″ to 4″ taper pipe			
	,, 4.		Gaskin and cement joint of 3½″ soil pipe to 4″ drain ..			
	,, 1.		Cement joint of 4″ drain to sewer branch (elsewhere provided)			
	,, 1.		Ditto, 6″ ditto to ditto (ditto)			
	,, 2.		Connection to sewer by The Welwyn Garden City, Ltd., P.C. £9 9*s*.			
144	—	Run.	3″ agricultural drain pipe laid with open joints and excavation, average 2′ deep as described			
	No. 1.		Small chamber built around rodding eye with half brick in cement sides and concrete bed 3″ thick and concrete benched up to fall towards stopper, rendered inside with cement and including approved airtight coated cover and frame complete			
	,, 24.		Salt glazed stoneware trapped gulley with 6″ × 6″ cast iron straight bar grating bedded on and surrounded with Portland cement concrete and cement joint to 4″ drain			
	,, 16.		Cast concrete catchpit gulley, size 9″ × 9″ × 15″ deep in clear with 4″ sides and bottom, 3″ outlet, and connecting up to end of agricultural drain and including rebated rim cast-iron grating, as before described, and excavation as required			
	,, 18.		Ditto, all as last, but connection to 3″ stoneware drain ..			
	,, 24.		4″ Salt glazed open channel 1′ 6″ long, bedded in cement to discharge over gulley on and including Portland cement concrete bed			
	,, 24.		Brick or concrete kerb to 6″ × 6″ gulley and 1′ 6″ channel, finished in Portland cement and sand gauged 1 to 3 with rounded top and wall at back rendered, including narrow return and arris			
	,, 34.		Ditto to 9″ × 9″ gulley without channel			
	,, 1.		Cast iron airtight coated inspection cover and frame bedded in cement in socket of 4″ drain pipe			
			Continued	£		

Yards.	Feet.				£	s.	d.
				Continued			
				The following in No. 16 Sumps circular on plan :—			
8½	—	—	Cube.	Excavate not exceeding 6′ deep and return, fill and ram earth			
13	—	—	,,	Ditto, and wheel and spread earth on site			
13	—	—	,,	Approved hard dry brick or stone filling			
13	—	—	Sup.	Expanded metal cut circular and laying on filling with and including a layer of coarse sacking			
				The following in No. 10 Inspection Chambers :—			
21	—	—	Cube.	Excavate not exceeding 6′ deep, part returned, filled in and rammed, the remainder wheeled, spread and levelled as previously described			
586	—		Sup.	Planking and strutting to sides of excavation if required (all measured)			
2	—	—	Cube.	Portland cement concrete (1—7) in foundations			
—		No. 10.		Ditto, in bottom of manhole, size 2′ 2″ × 1′ 10½″ and average 9″ thick, benched up and weathered to steep falls and channels formed to receive glazed stoneware channels (elsewhere measured) and with and including Portland cement rendering (1—2) a minimum thickness of ½″ finished to a smooth trowelled surface and making good to channels and bends			
148	—		Sup.	Reduced brickwork in Arlesey bricks in cement mortar in one-brick wall			
108	—		,,	Half brick wall in ditto			
81	—		Run.	Extra labour and material for one course oversailing 2¼″ projection and pointing			
		No. 18.		End of 4″ drain made good to half brick wall			
		,, 15.		Ditto, to one brick ditto			
		,, 1.		Ditto, 6″ to ditto			
		,, 1.		4″ half round salt glazed stoneware socketed channel 2′ 3″ long, bedded and joined in cement			
		,, 3.		4″ ditto, channel bend 2′ long and ditto			
		,, 5.		4″ ditto, ditto, 2′ 6″ long and ditto			
		,, 1.		4″ to 6″ ditto, taper channel bend, 2′ 6″ long and ditto ..			
		,, 14.		4″ ditto, three-quarter section branch bend and ditto ..			
21	—	—	Sup.	½″ Portland cement rendering (1—2) trowelled smooth on brickwork			
		No. 10.		24″ × 18″ cast-iron coated manhole cover and frame, bedded in cement mortar and sealing cover with cart grease and sand			
		,, 10.		Cast iron coated step iron and building in and make good rendering			
				Allow for testing all drains by water, to the approval of the Architect and the Local Authorities, both before and after being covered in and for flushing out on completion of work			
				DRAINS. CARRIED TO SUMMARY	£		

					£	s.	d.
				BRICKLAYER			
				The bricks under ground level are to be good quality White Arlesey bricks and the remainder approved Flettons			
				The external facings and for sills, steps and thresholds are to be purple pressed facing bricks; P.C. 132*s.* per thousand delivered on site			
				The lime to be freshly burnt, finely ground grey stone lime free from flares and core			
				Portland cement and sand to be as previously described			
				The mortar to be composed of one part of lime, one part of Portland cement and eight parts of sand, all to measure			
				The cement mortar to be composed of one of Portland cement to four of sand and to be mixed fresh as required			
				The brickwork is to be carried up in English bond, except where otherwise described, the joints well flushed up and the cross joints filled in solidly, and all work carried up evenly			
				Where plastered, joints are to be left rough or well raked out			
				All the external joints of brickwork are to be struck off flush as the works proceed ..			
				The prices of brickwork to include for all rough cuttings and for labour beam filling between timbers of floors and roofs			
Rods.	Feet.						
3	147	—	Sup.	Reduced brickwork in Arlesey bricks, in lime mortar as described			
51	10	—	,,	Ditto in Fletton bricks			
	819	—	,,	Half brick wall in Arlesey bricks, in lime mortar			
	8831	—	,,	Ditto in Fletton bricks			
	55	—	,,	Half brick fender wall in Fletton bricks, in lime mortar ..			
	449	—	,,	Ditto, sleeper wall in ditto built honeycomb			
	1698	—	,,	9″ wall in Flettons of bricks on edge built in Flemish bond, the stretchers with a 3″ cavity between, and the headers going through wall as bonders			
	111	—	,,	Wall 7½″ thick built of facing bricks laid, stretching courses with Fletton brick on edge backing finished fair face, and flush joints as described			
	169	—	,,	Labour, cutting and forming recess 1½″ deep in brickwork in narrow widths			
Yards.							
836	—	—	,,	Extra over Fletton brickwork for fair face with a neat flush joint, any unevenness to be made up by dinging ..			
103	—	—	,,	Rough rendering cement on flues, through floors and in roofs			
1½	—	—	,,	Pressed facing brick on edge paving, laid and grouted in cement			
	1360	—	,,	Approved Bitumen damp course well lapped at joints and bedded on mortar joint, part in half brick walls ..			
	233	—	,,	Vertical damp course of single slates set solidly in cement mortar			
	180	—	,,	Ditto, in narrow widths			
	1002	—	Run.	Extra labour only for bringing forward 9″ wall ½″ to form plinth			
	74	—	,,	Fair squint on Fletton fair face work			
				Continued	£		

Feet.				£	s.	d.
			Continued			
190	—	Run.	Fair birdsmouth			
44	—	,,	Extra labour and material for one course oversailing ..			
54	—	,,	Forming groove in brick threshold for water bar			
259	—	,,	Forming or leaving vertical chase 2¼″ deep for alternate courses of slab partition and building in			
735	—	,,	Bed plate in mortar			
119	—	,,	Ditto, oak sill in ditto			
50	—	,,	Screed up window frame			
68	—	,,	Rake out joints, wedge with lead and point flashings in cement mortar			
9	—	,,	Ditto, stepped flashings			
223	—	,,	Stout Portland cement fillet as flashing, including raking out joints of brickwork and three strands of twine embedded and fixed with nails			
365	—	,,	Extra labour and material, bonding two courses high to concrete lintol at back with alternate headers snapped to ¾″ length..			
174	—	,,	Ditto, three courses high ditto			
87	—	,,	Pressed facing brick on edge step, all headers cropped to 4½″, set in cement mortar and pointed top and front ..			
56	—	,,	Ditto, 9″ wide ditto			
			No. 2, fair end			
45	—	,,	Ditto, ditto, including pointing narrow return			
57	—	,,	Ditto, ditto, with one course laid flat as riser and pointing top and front			
			No. 12, fair end			
75	—	,,	Ditto, 12″ wide ditto			
			No. 20, fair end			
180	—	,,	Ditto, 13½″ wide ditto			
			No. 44, fair end			
—	—	,,	Ditto, 18″ wide with ditto			
			No. 14, fair end			
104	—	,,	Selected quarry tiles as window board, 4″ wide set and pointed in cement mortar, including cement screed on brickwork and cutting and fitting at back			
			No. 26, fitted end			
361	—	,,	Ditto, 7″ wide ditto			
			No. 113, fitted end			
106	—	,,	Second quality white glazed tiles as ditto, 7″ wide and all as last			
			No. 30, fitted end			
	No. 150.		End timber built in or cut and pinned			
	,, 70.		Ditto, bar ditto			
	,, 6.		Ditto, handrail on splay and make good plastering ..			
			Continued	£		

		£	s.	d.
	Continued			
No. 14.	Perforation through one brick wall for small pipe and make good			
,, 12.	Ditto, for 4″ drain pipe and ditto			
,, 14.	Ditto, for small pipe and make good facings both sides ..			
,, 61.	Ditto, for ditto and make good facings and plastering ..			
,, 4.	Labour forming aperture, size 6″ × 6″, through one-brick parapet wall and pointing to match facings and including two courses of slates over in cement mortar			
,, 8.	Extra labour and material for oversailing as corbel under ends of purlin at chimney stack			
,, 42.	Ditto for kneeler at end of eaves in plain tiles, size 10″ × 6″ and 9″, projection and bedding and pointing in cement mortar			
,, 2.	Bed and point small frame in cement mortar both sides ..			
,, 28.	Ditto door, frame ditto, one side			
,, 8.	Ditto, ditto, both sides			
,, 16.	Build in steel window, size 1′ 8″ × 2′ 0⅞″, including pinning in lugs and bedding and pointing in cement mortar ..			
,, 38.	Ditto, 1′ 8″ × 3′ 0½″			
,, 12.	Ditto, 1′ 8″ × 4′ 0″			
,, 2.	Ditto, 3′ 3¼″ × 2′ 0⅞″			
,, 37.	Ditto, 3′ 3¼″ × 3′ 0½″			
,, 16.	Ditto, 3′ 3¼″ × 4′ 0″			
,, 26.	Ditto, 4′ 10½″ × 3′ 0½″			
,, 12.	Ditto, 4′ 10½″ × 4′ 0″			
,, 2.	Ditto, 8′ 1¾″ × 3′ 0½″			
,, 6.	Ditto, steel fanlight, size 3′ 10″ × 10½″ and ditto			
,, 12.	Ditto, pair standard French windows and frame, size 3′ 9″ × 6′ 6″ and ditto			
,, 46.	Parge and core flue			
,, 12.	Parge and core short 9″ × 4½″ flue from gas fire			
,, 46.	Short 9″ flue pipe as chimney pot, built in and projecting 3″ and flaunched up in cement mortar			
,, 72.	Mortice in brick step for dowel and running with cement ..			
,, 14.	Setting and bedding solid interior stove to 18″ opening ..			
,, 14.	Ditto to 24″ opening			
,, 2.	Ditto gas fire to 18″ opening			
,, 14.	Place gas cooking stove in position			
,, 6.	Ditto portable boiler and flue pipe ditto			
,, 6.	Ditto, ditto and connect up to brick flue and make good ..			
,, 2.	Ditto portable gas boiler on brackets (elsewhere measured) and fix flue pipe, including perforation through one-brick wall and make good facings both sides			
	Continued	£		

				£	s.	d.
			Continued			
No.	16.		Forming recess in brickwork with and including concrete lintol over and building in gas fire, pointing all round and connecting flue to brick ditto			
,,	152.		Extra for coke breeze, fixing bricks and building in ..			
,,	42.		9″ × 3″ square mesh terra cotta air brick and building in and forming aperture through one brick wall			
,,	2.		9″ × 9″ ditto and building in to half brick wall and make good			
,,	54.		9″ × 9″ ditto and ditto, and forming aperture through one brick wall, rendered all round in Portland cement mortar			
,,	6.		9″ × 6″ cast iron soot door and frame and building in side of brick flue and making good facings			
			FACINGS			
Feet.						
15465	—	Sup.	Extra over Fletton brickwork for purple pressed facing bricks with flush joints as described			
20	—	,,	Half brick wall with flush joints both sides			
46	—	,,	Ditto in small quantities as bearer under water butt and ditto			
597	—	Run.	Fair cutting			
237	—	,,	Fair circular ditto			
5	—	,,	Fair skewback			
125	—	,,	Fair squint			
125	—	,,	Fair birdsmouth			
1956	—	,,	Flush joints to narrow returns at openings			
56	—	,,	Extra for Fletton brickwork for one course oversailing, projecting ½″ and flush joints as described			
21	—	,,	Ditto for fair axed segmental arch in one half brick ring and flush joints both sides and 9″ soffite			
62	—	,,	Ditto for fair axed semi-circular arch in one 9″ course, set in mortar and flush joints as described to front and narrow return to soffite			
37	—	,,	Ditto for flush course on end 9″ high and flush joints on front			
			No. 24, fair cutting to squint or birdsmouth angle..			
40	—	,,	Ditto for ditto, cast in and bonded at back as previously described and flush joints on front and narrow return to soffite			
10	—	,,	Ditto for brick on edge course, all headers and flush joints on front			
625	—	,,	Ditto for ditto, raking to gables			
			No. 74, fair splayed and fitted end			
			No. 17, apex mitre			
7		,,	Ditto for brick on edge flush coping, all headers cropped and rubbed to 4½″ and flush joints on top and both sides ..			
			Continued	£		

				£	s.	d.
			FACINGS (*contd.*)			
			Continued			
Feet. 31	—	Run.	Ditto to 9″ wall and flush joints as last			
66	—	,,	Extra over Fletton brickwork for coping, as last *circular* on elevation			
			No. 4, fair cut splayed intersection			
140	—	,,	Ditto for brick on edge coping to chimney stack, all headers set back ½″ from face of stack and flush joints on front and all angles			
494	—	,,	Ditto for flush header course as sill, including two courses plain tiles set slightly weathering and projecting 1″ and bedding and pointing in cement mortar, including all cuttings			
84	—	,,	Brick on edge string course, all headers projecting 1½″ with and including two courses plain tiles as bed mold under and two courses ditto as capping projecting, an additional ½″ and bedding and flush joints on front and returns. (*All labour and materials*)			
			No. 12, fair splayed and fitted end			
			No. 12, fair cut squint angle			
9	—	Sup.	One course plain roofing tiles bedded and pointed in cement mortar in small quantities as weathering to chimney back, including cuttings and screeding up to slight fall			
11	—	Run.	One course ditto, all headers bedded in cement mortar under soffite of concrete lintol over window			
	—	,,	Two courses ditto, bedded and pointed in cement mortar as coping to 9″ wall			
	No. 4.		Two courses ditto as flush necking to brick pier, size 9″ × 9″, and pointing			
	,, 2.		Ditto as cap to ditto, projecting ¾″ all round and ditto ..			
			TILE PAVING			
Yards. 263	—	— Sup.	6″ × 6″ quarry tile paving laid and evenly bedded in cement mortar and grouted in cement with ⅛″ joint, including all straight cutting and waste			
40	—	Run.	Raking, cutting and waste			
	No. 14.		Make good surface concrete and tile floor around small pipe			
	,, 12.		Ditto around drain pipe			
			BRICKLAYER. CARRIED TO SUMMARY ..	£		
			TILER			
			The roofing tiles are to be supplied by Messrs. H. T. and C. Major, of Bridgwater, Somerset, and laid in accordance with their instructions			
			The tiles will cover 85 to the square			
Sqrs. Feet. 124 50	—	Sup.	Major's patent treblè No. 3A roofing tiles and laying with nibs hung on battens (elsewhere measured)			
1116	—	Run.	Cutting and waste at top edge			
			Continued	£		

				£	s.	d.
			Continued			
Feet. 323	—	Run.	Cutting and waste at square abutment			
727	—	,,	Extra over tiling for neatly cut verge, with and including plain tile laid flat as undercloak and all bedded and pointed in cement mortar			
406	—	,,	Ditto for Major's socket valley tiles, including fair cutting both sides			
521	—	,,	Half-round, sand-faced red ridge tile, bedded in lime and hair mortar and pointed in cement, including slightly tilting at ends			
			No. 20, fitted end			
			No. 14, splayed and fitted end			
			No. 2, mitred intersection			
			No. 22, fair end filled with plain tiles set fan-wise and pointed in cement			
No. 28.			Approved glass tiles bonded in with tiling where directed (tiling not deducted)			
,, 31.			Dozen. *Fixing only* lead soakers			
Make good and leave all tiling sound and watertight at completion						
			TILER. CARRIED TO SUMMARY	£		

CARPENTER, JOINER AND IRONMONGER

The timber to be of sound yellow deal, well seasoned and dry and suitable for carcassing or joinery respectively, all cut square, free from shakes, wane, discoloured sapwood and large loose or dead knots

All hardwood to be free from sapwood, dead knots or other defects and well seasoned and dry

All framing to be put together with well-fitting mortice and tenon joints wedged up

As soon as building operations are commenced all floor boards to be used are to be properly stacked on site to allow a free circulation of air around same

The whole of the dimensions and thicknesses are to be taken as nominal and $\frac{1}{16}$″ will be allowed for each wrot face

All joinery to be thoroughly rubbed down and arrises taken off with glass paper and all to detail drawings

Include for all nails and spikes of approved lengths and weights

Feet. 6	—	Sup.	Temporary shuttering to vertical concrete in small quantities			
15	—	,,	Centering to segmental arch			
No. 7.			Centre to semi-circular arch 4′ 11″ span and 9″ soffite ..			
41	—	Cube.	Fir in 4″ × 2″ plate			
87	—	,,	Ditto 4″ × 2″ ground joists			
4	—	,,	Ditto 3″ × 2″ bearers to flat roof			
3	—	,,	Ditto 4″ × 2″ ditto to bulkhead			
521	—	,,	Fir framed in 7″ × 2″ in floor			
			Continued	£		

Sqrs.	Feet.				£	s.	d.
				Continued			
	87	—	Cube.	Fir framed in 7″ × 2½″ in floor			
	378	—	,,	Ditto 4″ × 2″ in rafters			
	122	—	,,	Ditto 4″ × 2½″ ditto			
	181	—	,,	Ditto 4″ × 2″ in ceiling joists			
	58	—	,,	Ditto 4″ × 2½″ ditto			
	8	—	,,	Ditto 4″ × 2″ hanger spiked			
	24	—	,,	Ditto 4″ × 2″ and 4″ × 3″ framed struts to purlins ..			
	101	—	,,	Fir framed in No. 2 7″ × 2″ purlins spiked together ..			
	26	—	,,	Ditto in 3″ × 2″ framing to roofs and cheeks of dormers and gables			
	7	—	,,	Fir framed in partition of 4″ × 2″ heads, sills and studs ..			
	50	—	Sup.	Wrot face on fir			
	32		,,	Counterlathing in narrow widths			
124	50	—	,,	1¼″ × 1¼″ sawn fir battens for Bridgwater tiling nailed to rafters			
4	10	—	,,	¾″ wrot boarding to soffite of eaves nailed to bearers (elsewhere measured)			
	82	—	,,	1″ Lier board, including splayed edges			
1	50	—	,,	1″ boarding with edges shot for lead and laying to flat roof and firring to falls			
3	45	—	,,	1″ ditto in roofs to dormers and ditto			
1	45	—	,,	1″ ditto in spandril cheeks of dormers (measured nett) ..			
	16	—	,,	1″ narrow gutter board and bearers			
	312	—	,,	1″ fir framed ridge			
	304	—	,,	2″ ditto valley			
	40	—	,,	Sawn *elm* weather boarding (2 out of 7″ × 1″) fixed with a 1″ lap and nailed with stout composition, nails spaced 1′ apart to concrete gable			
	327	—	Run.	Labour, rounded edge on 1″ part cross-grain			
	185	—	,,	Raking, cutting and waste on 1″			
	26	—	,,	Ditto, on elm weather boarding			
	6	—	,,	Splayed fillet			
	165	—	,,	Eaves tilting fillet			
	440	—	,,	1″ × 2″ bearer to soffite of eaves, nailed to rafters and built in brickwork in short lengths			
	572	—	,,	1″ × 4″ wrot deal fascia, including angles and ends ..			
	210	—	,,	1¼″ × 5″ sawn edging, nailed to and including pegs pointed and driven, including creosoting all over before fixing. (*Provisional*)			
	126	—	,,	1½″ rounded roll for lead			
	449	—	,,	1½″ × 1½″ herring-bone strutting to 7″ floor joists			
	23	—	,,	2″ × 2″ fir plate..			
	5	—	,,	9″ × 9″ *elm* lintol, adzed as directed on three sides and building in			
				Continued	£		

				£	s.	d.
			Continued			
	No. 70.		Boring 2½″ for ½″ barrel			
	,, 4.		Perforation through wood floor and plastered ceiling for small pipe and make good			
	,, 1.		Ditto through boarded soffite for vent pipe and ditto ..			
	,, 44.		Sinking in fir for soldered dot			
	,, 8.		Small gusset end to gutter			
	,, 208.		Fixing slip built in dry in joint of brickwork			
	,, 46.		¾″ wrot boarding and bearers, size 9″ × 1′, extreme to spandril ends of eaves			
	,, 20.		Fixing steel window, size 3′ 3¼″ × 3′ 0½″, to deal frame, including screws and bedding in oil mastic cement ..			
	,, 6.		Ditto, size 4′ 10½″ × 3′ 0½″			
	,, 16.		Approved large cooper's oak barrel as rainwater butt, with and including deal-ledged cover and handle and wooden beer tap as draw-off, complete and fixing in position ..			
Provide the sum of £250 (two hundred and fifty pounds) for paths, fences and gates ..				250	–	–

FLOORS AND SKIRTINGS IN WROT DEAL

Sqrs.	Feet.			
75	50	—	Sup.	1″ grooved and tongued flooring in narrow widths fixed to each joist with 2½″ brads, well pinned down and including protecting and cleaning off at completion
	49	—	,,	1″ ditto and bearers in openings
	33	—	,,	1″ ditto in covering to bulkhead
	17	—	Run.	Labour, rounded nosing on 1″ part cross-grain
	13	—	,,	Raking, cutting and waste
	246	—	,,	Extra for mitred border at hearth
	2804	—	,,	¾″ × 3½″ splay chamfered skirting and backings plugged to wall, including mitres and fitted ends
	543	—	,,	Ditto nailed to concrete partition
	31	—	,,	Ditto fixed to wood partition
Yards.				
143	—	—	Sup.	Approved composition floor; P.C. 6*s.* 6*d.* per yard super., including laying complete and add for attendance ..

WROT DEAL

Windows

5	—	Sup.	1½″ rebated sash in six squares with ¾″ rebated and square bars. (In No. 1)	

Doors

84	—	,,	1″ ledged trap door	
139	—	,,	Door with 5″ × 1″ ledges and one brace covered with ¾″ tongued, grooved and beaded boarding	
84	—	,,	1¼″ one-panel square dwarf door	
299	—	,,	1¼″ two-panel square door	
			Continued	£

Feet.			WROT DEAL—DOORS (*contd.*)	£	s.	d.
			Continued			
1725	—	Sup.	1½″ two-panel square door			
68	—	,,	1½″ ditto, the lower panel in plywood and the upper panel open for glass and divided into No. 9 squares with rebated bars and with and including glazing beads mitred and bradded. (In No. 4)			
244	—	,,	1¾″ two-panel square, both sides door, the lower panel with quadrant molding planted on one side, the upper in No. 9 squares for glass and all as last described ..			
19	—	,,	1¾″ two-panel door, all as last, but the upper panel in No. 12 squares with rebated and molded bars			
247	—	,,	1¾″ square door in three vertical panels, with quadrant molding planted on around panels externally			
			No. 7, extra to reforming rebated opening for glass in ditto, size 8″ × 8″, with glazing beads mitred and bradded			
	No. 2.		Door, size 1′ 10″ × 2′ 4″, with 1″ ledges covered with 1″ tongued, grooved and beaded boarding			
			DOOR FINISHINGS			
168	—	Run.	1″ × 4½″ beaded lining to trap door, tongued at angles ..			
276	—	,,	1½″ × 4½″ rebated jamb linings, tongued at angles and fixing to and including fixing slips built in			
228	—	,,	1½″ × 5″ ditto, ditto			
1031	—	,,	1½″ × 5½″ ditto, and fixing to and including coke breeze bricks built in			
18	—	,,	1½″ × 5½″ ditto, fixed to wood framed partition			
4557	—	,,	1¾″ × 1¾″ Scotia molded to detail, architrave and mitres ..			
45	—	,,	2″ × 4″ splayed and rebated weather board planted on door, including fair ends			
			WROT AND FRAMED DEAL			
571	—	,,	2″ × 3″ rebated frame			
228	—	,,	2″ × 3″ ditto, grooved at back for partition			
128	—	,,	2″ × 4″ rebated frame			
14	—	,,	2½″ × 3½″ ditto			
225	—	,,	2½″ × 4″ ditto			
17	—	,,	3″ × 4″ ditto			
216	—	,,	3″ × 4″ rebated and grooved frame			
322	—	,,	3½″ × 5″ ditto with *oak* pins projecting ½″ at each angle or intersection			
			SUNDRIES			
81	—	Sup.	1¼″ removable coal boards in 9″ widths			
41	—	Run.	1″ × 6″ mantel shelf molded on front edge and splay rebated at back			
			No. 36, fair molded and rounded end			
			Continued	£		

Feet.			WROT DEAL—SUNDRIES (*contd.*)	£	s.	d.
			Continued			
2	—	Run.	1″ × 9″ service board, rounded both edges and bearers plugged to wall			
			No. 2, notched and twice rounded end			
2180	—	,,	1¼″ × 1¾″ Scotia molding to detail, nailed to wall or partition at ceiling level, including mitres and ends			
63	—	,,	2″ × 2½″ rebated runners for coal boards, nailed to door frame			
	No. 16.		¾″ chamfered all-round blackboard, plugged to wall for flushing cistern			
	,, 29.		¾″ door, size 9″ × 9″, hung to and including 1½″ × ¾″ frame mitred at angles and plugged to wall (ironmongery, elsewhere measured)			
	,, 36.		2″ × 4″ bracket to mantel shelf 10″ long, molded on front and cut and pinned to wall at back			
	,, 14.		Wood mantel piece to detail; P.C. £2 15*s.*, and add for fixing, including plugging wall			
	,, 14.		Ditto; P.C. £3 10*s.*, ditto			
	,, 14.		Ledged cover to 40 gallon cistern			
	,, 4.		1¼″ *elm* ledged and grooved draining board, size 1′ 6″ × 1′ 6″, and fixing on and including deal bearers or brackets plugged to wall			
	,, 11.		Ditto, size 1′ 6″ × 1′ 9″, ditto			
	,, 7.		Ditto, size 1′ 6″ × 2′ 0″, ditto			
	,, 3.		Ditto, size 1′ 6″ × 1′ 9″, with rounded corner ditto ..			
	,, 2.		Ditto, size 1′ 6″ × 2′ 0″ ditto, ditto			
	,, 1.		Ditto, size 1′ 6″ × 2′ 0″, with quadrant end ditto			
			WROT AND FRAMED ENGLISH OAK			
4	—	Run.	2½″ × 3½″ rebated sill			
115	—	,,	3½″ × 5″ sunk weathered, throated, rebated and grooved sill			
			No. 44, fair end			
			STAIRS IN WROT DEAL			
142	—	Sup.	1″ grooved-and-tongued landing on and including fir framed bearers			
587	—	,,	1¼″ treads with rounded nosings and ¾″ risers, rebated and grooved together and glued and blocked			
178	—	,,	Ditto winders and risers			
100	—	Run.	¾″ × 8″ apron lining grooved for plaster			
			No. 5, fitted end			
			No. 37, housed end			
			No. 5, mitre			
909	—	,,	1″ × 1½″ square baluster, including housed ends			
			Continued	£		

Feet.			STAIRS IN WROT DEAL (*contd.*)	£	s.	d.
			Continued			
93	—	Run.	1″ × 1½″ lattice halved together in squares, screwed at intersections and framed at ends			
91	—	,,	1¼″ × 2½″ twice splayed capping, grooved on over outer string			
			No. 44, splayed and fitted end			
136	—	,,	1¼″ × 3″ rounded nosing, tongued to floor or landing, including fitted ends			
76	—	,,	1¼″ × 4¾″ rebated and chamfered skirting to landing, plugged to wall, including mitres and ends			
168	—	,,	1¼″ wall string, plugged			
87	—	,,	Ditto, ramped			
			No. 8, fitted end			
			No. 3, housed end			
			No. 45, fair splayed end			
			No. 13, tongued and mitred angle to last wall string			
			No. 13, tongued heading joint			
			No. 7, extra to short ramp and heading joint ..			
108	—	Run.	1¼″ outer string			
			No. 40, end housed to newel			
41	—	,,	1¼″ *birch* mopstick handrail and fixing to brackets (elsewhere measured)			
			No. 14, fair rounded end			
30	—	,,	1½″ × 2″ twice chamfered and grooved handrail			
92	—	,,	1½″ × 2″ ditto, with and including 2¼″ × 1¼″ *birch* capping, grooved on over last			
			No. 67, end housed to newel			
			No. 1, splayed and fitted end			
201	—	,,	3½″ × 3½″ newel			
			No. 11, framed end			
			No. 22, wrot and chamfered end			
			No. 27, extra for octagonal cut, sunk and chamfered to detail, top 2¾″ high			
46	—	,,	3½″ × 2″ half ditto, plugged to wall			
23	—	,,	3½″ × 2″ ditto, fixed to concrete partition			
			No. 15, wrot and chamfered end			
			No. 9, extra for chamfered top to match newel ..			
	No.	61.	End of riser housed			
	,,	235.	Ditto, tread and riser housed to string			
	,,	34.	Ditto, winder and riser ditto			
	,,	34.	Ditto, ditto housed to newel			
	,,	45.	Ditto, tread notched to newel			
	,,	7.	Extra labour and material for splayed end to bottom step, including mitred riser and rounded return to tread ..			
	,,	3.	3½″ × 3½″ stop, 12″ long, framed to floor and chamfered both ends			
			Continued	£		

Feet.				£	s.	d.
			Continued			
			FITTINGS IN WROT DEAL			
40	—	Sup.	¾″ cross-tongued shelf			
18	—	,,	¾″ shelf and bearers fixed to wall or partition			
11	—	,,	¾″ cross-tongued ditto			
150	—	,,	¾″ lattice shelving and bearers nailed to wall or partition ..			
251	—	,,	¾″ grooved, tongued and beaded one side boarding in batten widths to side of cupboard			
173	—	,,	1″ shelf, including bearers or gallows brackets plugged to wall			
210	—	,,	1″ ditto and ditto. (*Provisional*)			
96	—	,,	1″ cross-tongued ditto and ditto			
20	—	,,	1″ cross-tongued table top and bearers plugged to wall ..			
44	—	,,	1″ grooved, tongued and beaded one side bottom to cupboard			
39	—	,,	1″ square framed cupboard front			
			No. 8, extra to forming and hanging one panel doors in ditto, size 1′ 3″ × 3′ 3″, including rebated edge to door and framing			
24	—	Run.	Labour, groove for plates			
62	—	,,	Ditto, rounded nosing on 1″ part across grain			
			No. 16, mitre			
58	—	,,	Tongued and beaded angle to ¾″ match-boarding			
35	—	,,	Ship lap joint to 1″			
52	—	,,	Plugging wall			
44	—	,,	¾″ quadrant angle bead planted on			
44	—	,,	¾″ × 6″ chamfered bearer fixed to wall or partition, including mitres and ends			
56	—	,,	1″ × 4″ chamfered both edges cloak rail plugged to wall, including fair ends			
14	—	,,	1½″ × 2″ bearer plugged to wall			
214	—	,,	2″ × 2″ framed ditto to side of cupboard			
	No. 28.		Circular sinking in cloak rail for end of ⅝″ diameter tubing ..			
	,, 14.		Pair gallows brackets plugged to wall for gas meter ..			
			THE FOLLOWING IN No. 10 DRESSERS (*No. 8, 3′ long, and No. 2, 3′ 6″ long*), 1′ 6″ *Extreme Projection and* 6′ 5″ *high, including any Plugging Walls required.*			
43	—	Sup.	¾″ cross-tongued division			
7	—	,,	1″ division			
68	—	,,	1″ shelf			
43	—	,,	1″ cross-tongued ditto			
47	—	,,	1″ ditto bottom and 1½″ × 1½″ bearers			
23	—	,,	1¼″ top			
58	—	,,	1¼″ side			
53	—	,,	1¼″ cross-tongued ditto			
			Continued	£		

Feet.				£	s.	d.
			FITTINGS IN WROT DEAL—DRESSERS (*contd.*)			
			Continued			
49	—	Sup.	1¼″ ditto table top			
52	—	,,	1¼″ one-panel square door hung, folding			
15	—	Run.	Labour rebate			
91	—	,,	Ditto stopped groove for plates			
45	—	,,	Ditto rounded nosing, 1¼″ part cross-grain			
			No. 8, mitre to ditto			
25	—	,,	Ditto housing ¾″, including groove, part cross-grain ..			
98	—	,,	Ditto, ditto, 1″ ditto			
142	—	,,	Ditto, ditto, 1¼″ ditto			
15	—	,,	Labour rebated meeting stile to 1¼″ door			
15	—	,,	Ditto rebated and beaded ditto			
44	—	,,	1″ × 2″ chamfered plinth, including angles and ends ..			
107	—	,,	2″ × 2″ wrot post			
			No. 40, end housed			
	No.	16.	Dovetailed drawer 1′ 3″ × 1′ 4″ × 6″ deep of 1″ front, ¾″ sides and back and ½″ bottom, including glued blockings and hardwood runners			
	,,	4.	Ditto 1′ 3″ × 1′ 7″ × 6″ deep ditto			
			IRONMONGERY, *including Screws and Fixing to Deal with Iron or Enamelled Screws as required.*			
			All ironwork to be dull black.			
	No.	27.	Pair 1½″ double pressed steel butts			
	,,	43.	Ditto 2½″ ditto			
	,,	147.	Ditto 3″ ditto			
	,,	28.	Ditto 4″ ditto			
	,,	16.	Pair 14″ cross-garnet hinges			
	,,	8.	Ditto 18″ ditto			
	,,	30.	Barrel bolt, P.C. 1*s.* 6*d.*			
	,,	32.	Cupboard lock with thread escutcheon, P.C. 1*s.* 6*d.* ..			
	,,	24.	Rim dead lock, P.C. 4*s.* 6*d.*			
	,,	14.	Night latch, P.C. 8*s.*			
	,,	8.	Norfolk latch, P.C. 3*s.*			
	,,	68.	Rim lock and wood furniture, P.C. 9*s.*			
	,,	52.	Rim latch and furniture, P.C. 7*s.* 6*d.*			
	,,	1.	12″ iron casement stay and two pins			
	,,	27.	Small black cupboard knob			
	,,	80.	Cupboard knob, P.C. 9*d.*			
	,,	35.	Bales ball catch, P.C. 1*s.* 6*d.*			
	,,	20.	Drawer pull, P.C. 6*d.*			
	,,	84.	Hat and coat hook, P.C. 1*s.*			
	,,	56.	Wardrobe hook, P.C. 7½*d.*			
			Continued	£		

IRONMONGERY AND FIXING TO DEAL (*contd.*)

Continued

Feet.			£	s.	d.
	No. 168.	Brass cup and jug hook			
	,, 14.	Combined knocker and letter plate, P.C. 7*s.* 6*d.*, including splayed aperture through door			
	,, 27.	Short length black chain, including eyes and fixing to vent door and frame			
22	— Sup.	Fine perforated zinc in steel casement fixed with putty to match glazing. (In No. 28 squares)			
106	— Run.	$\frac{5}{16}$″ × 1″ galvanized water bar bedded in cement at back of brick threshold			
38	— ,,	$\frac{5}{8}$″ black electric cable tubing cut to lengths and fixing as cloak rail			
	No. 72.	Short length of gas barrel as dowel and mortice in fir ..			
	,, 27.	Piece fine perforated zinc, size 9″ × 9″, and fixing, including small splayed fillet mitred around and plugged to wall			
	,, 2.	Ditto, size 12″ × 12″, with fillet as last, fixed to ceiling joists, including bearers and making good plastering ..			
	,, 18.	Stout iron handrail bracket and fixing with screws to plugs in wall			
		CARPENTER, JOINER AND IRONMONGER. CARRIED TO SUMMARY	£		

FOUNDER, SMITH, GASFITTER AND ELECTRICAL ENGINEER

The prices for gutters and pipes are to include for all cutting and waste where short lengths are required and all ironwork is to include for painting one coat before leaving the works

CAST IRON

Feet.						
418	— Run.	2½″ diameter socketed rainwater pipe with ears and jointed in red lead and fixed 1″ clear of walls, with barrel distance pieces and 3″ wrought-iron pipe nails				
		No. 34, extra to shoe				
		No. 22, ditto swan-neck 9″ projection				
		No. 4, ditto, 12″ ditto				
	No. 4.	Rainwater head, P.C. 15*s.*, and fixing as described to rainwater pipe				
742	— Run.	4½″ half-round eaves gutter put together with bolts and nuts, jointed in red lead and fixing on and including approved brackets, two to each six-feet length screwed to fascia				
		No. 54, stopped end				
		No. 12, extra to angle				
		No. 30, ditto to outlet with nozzle cast on ..				
	No. 4.	Extra only for gutter bracket caulked and cut and pinned to wall in lieu of fixing to wood fascia				
	,, 22.	Ditto, 9″ projection from wall and ditto				
		Continued	£			

		£	s.	d.
	CAST IRON (*contd.*)			
	Continued			
No. 28.	Interior stove, P.C. £2			
„ 18.	Gas fire ditto, including brass tap, P.C. £2 5s.			
„ 14.	Gas cooking stove, P.C. £9			
„ 2.	Gas circulating boiler, including flue pipe and mushroom cap, P.C. £10			
„ 12.	Coke boiler, including base stoking tools and flue pipe, P.C. £10			
	WROUGHT IRON			
Feet. 128 — Run.	½″ gas barrel cut to length and embedded in concrete hearth as reinforcement			
No. 6.	⅛″ check plate with and including circular hole for flue pipe and sliding soot door and building in over brick opening, size 1′ 9″ × 9″			
„ 14.	1″ × $\frac{8}{16}$″ galvanized frame, including riveted angles and fixing around mat sinking, size 3′ × 2′, and making good concrete			
„ 14.	Approved galvanized sanitary dustbin 18″ diameter and 24″ high and placing in position			
	STEEL			
1297 — Run.	½″ mild steel bar reinforcement embedded in concrete lintol			
243 — „	¾″ ditto			
216 — „	¾″ ditto in concrete beam, including ends hooked as directed			
No. 2.	Pair cantilever brackets for gas boiler, including cutting and pinning to wall and making good facings			
	STEEL CASEMENTS AND FRAMES			
	The steel windows, etc., as hereafter described are to be supplied by a firm to be selected by the Architect and the following P.C. prices include for painting two coats anti-corrosive paint at works and for delivery to Welwyn Garden City Railway Station			
	All windows are of cottage standard sizes and the Contractor is to place the same on order in sufficient time to enable them to be built in as the work goes up ..			
	Provide the P.C. sum of £171 8s. 9d. for fixed lights, casements and frames and fittings and add for getting in and storing on site (fixing elsewhere measured) ..			
	Provide the P.C. sum of £61 16s. for No. 12 pairs of folding French casements and fittings and add as last (ditto)			
	Provide the P.C. sum of £2 2s. for No. 6 fixed fanlights and add as last (ditto) ..			
	GASFITTER			
	All work is to be in accordance with the requirements of the Hatfield Gas Company			
	Provide the total P.C. sum of £48 to be paid to the Gas Company for running services in trench up to meter in each house and allow for giving notices and provide all necessary attendance			
	Continued	£		

				£	s.	d.
			GAS FITTER (*contd.*)			
			Continued			
Feet. 168	—	Run.	½" wrought-iron gas barrel, including screw sockets, tees, bends, connectors and all other necessary fittings jointed in red lead and fixing with strong pipe hooks, including all holes through walls and floors and making good (*Provisional*)			
133	—	,,	⅝" ditto. (Ditto)			
No. 18.			½" connection to gas fire			
,, 2.			⅝" ditto to gas boiler			
,, 14.			⅝" ditto to cooking stove			
,, 14.			Short length of ⅝" lead pipe bent as required, including brass union and soldered joint and red lead joint to barrel and joint to union of meter			
Allow for testing gas services to the satisfaction of the Architect and the Gas Company						
			ELECTRICAL ENGINEER			
Allow for giving notice to the Welwyn Garden City Electricity Supply Company and pay their charge of P.C. £5 per house (£70 in all) for connections to main and for running services to and supplying and fixing meters at points to be selected and add for attendance						
Allow for connection to meter and running continuous lead-covered wiring in accordance with the Regulations and to the approval of the Company to the following points; including cut-outs and fittings, complete as described. All switches, wall plugs and lamp holders to be oxidized, black finish						
No. 114.			Ceiling lighting point with semi-flush pattern wall switch on wood base, lamp holder and flex complete			
,, 14.			Ditto, all as last, but including No. 2 two-way wall switches as described			
,, 28.			Wall plug points with switch wall plugs			
Allow for testing the electric light installations to the satisfaction of the Architect and the Electricity Company and make good all defects						
			FOUNDER, SMITH, GAS FITTER, AND ELECTRICAL ENGINEER. CARRIED TO SUMMARY	£		
			PLUMBER AND HOT WATER FITTER			
			EXTERNAL			
All the lead to be the best milled and of the full weight specified and to include any ordinary copper mailing required						
Cwts.	Qrs.	Lbs.				
3	—	14	— Milled lead and labour in 4 lb. gutters, saddles and flashings			
36	—	21	— Ditto in 4 lb. flats and vertical cheeks			
8	—	21	— Ditto in 3 lb. soakers (fixing in " Tiler ")			
Feet. 127	—	Run.	Labour welt in 4 lb. lead			
53	—	,,	Labour dressing, ditto over nosing			
121	—	,,	Open copper nailing			
			Continued	£		

			£	s.	d.
		Continued			
Feet. 453	— Run.	Close copper railing			
37	— „	4 lb. lead apron, 9″ wide, with welted edge and turning into groove in window sill, bedding edge in white lead and copper nailing as required			
No. 48.		Bossed end to roll			
„ 44.		Solder dot and brass screw			
„ 10.		Labour dressing, 4 lb. lead over end of oak sill and extra copper nailing			
„ 4.		Ditto dressing, 4 lb. lead through aperature in one-brick wall and into rain water head			
„ 14.		Perforation through tile roof for small lead pipe, including lead, slate, soldered joint and making good			
„ 1.		Ditto for 3½″ iron vent pipe and ditto			
„ 16.		1¼″ galvanized steam barrel overflow pipe fixed vertically in water butt, with bend discharging into gulley and back-nut connection in red lead and perforation through bottom of butt and watertight joint			

INTERNAL

Provide the P.C. sum of £10 to be paid to the Welwyn Garden City company for running 1½″ main in ground to a point shown on drawings

Where it is necessary to form bends or sets in line of water service piping, these, when easy, are to be made without heating the pipe; sharp bends are to be made before galvanizing. No elbows will be allowed except where unavoidable and are then to be of the round description

Feet. 928	— Run.	½″ best quality wrought-iron, lap-welded, galvanized steam barrel, including screw sockets, bends, tees, connectors and all other necessary fittings jointed in red lead and fixed with strong pipe hooks, including all holes through walls, floors and ceilings and making good. (*Provisional*)			
505	— „	¾″ ditto (Do.)			
92	— „	½″ ditto and laying in ground (trench elsewhere measured)			
49	— „	¾″ ditto, ditto (Do.)			
127	— „	1″ ditto, ditto (Do.)			
309	— „	1½″ ditto, ditto (Do.)			
No. 1.		Connection of 1½″ barrel to end of similar ditto			
„ 16.		½″ red lead joint to union of flushing cistern			
„ 15.		½″ ditto to lavatory tap			
„ 14.		¾″ ditto to bath tap			
„ 14.		¾″ backnut connection to cistern, including red lead joint and perforation			
„ 14.		¾″ ditto to hot water tank (perforation elsewhere included)			
„ 16.		½″ lead overflow pipe, 2′ long, bent as required and wiped soldered joint to union of flushing cistern			
		Continued	£		

			£	s.	d.
		Continued			
	No. 14.	¾″ lead overflow pipe, average 5′ long, including brass union and backnuts and perforation in cistern and red lead and wiped soldered joints			
	,, 14.	1¼″ ditto, average 4′ long, and wiped soldered joint to bath fitting			
	,, 14.	1¼″ lead waste pipe, average 4′ long, bent as required and joint to trap of bath			
	,, 14.	1¼″ lead waste pipe, average 4′ 10″ long and wiped soldered joint to trap of sink			
	,, 15.	1¼″ ditto, average 6′ 10″ long and ditto to trap of lavatory basin			
	,, 14.	1¼″ lead trap with brass screw inspection cap and joint to sink waste			
Feet. 140	— Run.	Covering service pipes with hair felt, bound with tarred twine. (*Provisional*)			
116	— ,,	2″ cast-iron, socketed waste pipe jointed in red lead and gaskin and fixing as described to rain-water pipe No. 13, extra to shoe			
	No. 13.	Cast-iron rain-water head, P.C. 10s., and fixing as previously described			
78	— Run.	3½″ internal diameter, heavy socketed, cast-iron soil and vent pipe with ears dipped in Dr. Angus Smith's solution, all joints caulked and run with molten lead and fixing as described to rain-water pipe No. 4, extra for junction with 3½″ branch			
	No. 4.	3½″ soil pipe branch as described, 1′ 6″ long, including large socket for W.C. tap and one caulked joint			
	,, 4.	Galvanized wire balloon grating and fixing in 3½″ vent pipe			
	,, 14.	½″ screw-down nickel-plated "Easy-clean" bibcock stamped "COLD" and red lead joint			
	,, 14.	½″ screw-down brass stopcock and red lead joints			
	,, 14.	¾″ ditto and ditto			
	,, 14.	½″ ball valve with copper ball and brass union and backnut, including perforation in cistern and red lead joint ..			
	,, 14.	24″ × 18″ cane and white glazed sink, 10″ deep, with waste, plug and chain and fixing on and including No. 2 iron cantilever brackets built in wall			
	,, 6.	Glazed lavatory basin, with overflow, waste, plug, chain, trap, hot and cold taps and brackets, P.C. £2 10s. complete and add for fixing, including securing brackets to concrete partition and making good plastering ..			
	,, 9.	Ditto, including brackets cut and pinned to wall and all as last			
	,, 14.	Bath, with overflow, waste, plug, chain, trap and hot and cold taps, P.C. £6 10s. complete and add for fixing in position on first floor			
	,, 10.	W.C. apparatus with pan, trap, hardwood seat, flush pipe, brass chain, china pull, flushing cistern and brackets, P.C. £3 complete and add for fixing, jointing up flush pipe and connection to drain			
		Continued	£		

			£	s.	d.
		Continued			
No. 2.		W.C. apparatus, P.C. £3 10s. and all as last			
„ 4.		Ditto, P.C. £3 and connection to iron soil pipe			
„ 14.		40 gallon ⅛″ plate, riveted galvanized cistern and fixing in roof on and including fir bearers			
		HOT WATER FITTER			
Feet. 193	— Run.	½″ best quality wrought-iron, lap-welded, galvanized steam barrel and fixing, all as described for cold water service			
314	— „	¾″ ditto			
312	— „	1″ ditto			
No. 15.		½″ red lead joint to lavatory valve			
„ 14.		¾″ ditto to bath valve			
„ 14.		¾″ backnut connection to tank, including red lead joint (perforation elsewhere included)			
„ 28.		1″ ditto to ditto (ditto)			
„ 24.		1″ ditto to boiler (ditto)			
„ 4.		1″ ditto to gas heater (ditto)			
„ 14.		½″ screw-down, nickel-plated "Easy-clean" bibcock stamped "HOT" and red lead joint			
„ 12.		Approved safety valve, including short branch and bend and tee in 1″ service			
„ 6.		25 gallon galvanized, riveted hot water tank, with bolted handhole cover and flanged and bolted holes for flow return and expansion pipes and fixing in linen cupboard on first floor, including bearers			
„ 8.		Ditto, all as last, but fixing at ceiling level on and including pair of iron cantilever brackets built in and make good facings			
Allow for testing the whole of the cold and hot water supplies and work connected therewith and leave clean and perfect at completion					
		PLUMBER AND HOT WATER FITTER. CARRIED TO SUMMARY	£		

			£	s.	d.
		PLASTERER			
The lime to be well burnt stone or chalk lime, run into putty at least one month before use					
The sand to be clean sharp pit sand, free from earth, loam or saline materials and well screened					
The coarse stuff to have one pound of good long hair, free from grease and other impurities, well beaten up and mixed with every 3 cubic feet of coarse stuff ..					
Laths to be of lath and half strength, fixed with 1″ lath nails, breaking joints in bays and fixed with butt joints at ends without overlapping					
The coarse stuff is to be composed of one part of lime and three parts of sand by measure. For setting coat, not less than one part of lime putty is to be well mixed up with one part of sand					
		Continued	£		

Yards.	Feet.				£	s.	d.
				Continued			
535	—	—	Sup.	Render and set on concrete partition			
12	—	—	,,	Ditto on sides and soffite of concrete beam			
2511	—	—	,,	Ditto on walls			
	853	—	,,	Ditto in narrow widths			
48	—	—	,,	Lath plaster float and set partition			
1425	—	—	,,	Ditto ceilings			
42	—	—	,,	Ditto soffite of stairs and landings			
18	—	—	,,	Ditto, ditto flewing			
	2610	—	Run.	Labour rounded arris, including first coat gauged with Portland cement			
		No. 28.		Make good plastering around mantel piece			
		,, 18.		Ditto around mantel shelf and brackets			
		,, 18.		Ditto around built-in gas stove			
				PORTLAND CEMENT			
				INTERNALLY			
143	—	—	Sup.	Floated bed (1—3) for composition floor			
263	—	—	,,	Ditto for tile paving			
24	—	—	,,	Ditto for tile hearth			
17	—	—	,,	Floated bed (1—3) on brickwork for vertical tiling ..			
	101	—	,,	Ditto in narrow widths for ditto in surrounds to fireplaces. (*Provisional*)			
41	—	—	,,	1″ paving (1—2) floated to a smooth and even surface ..			
9	—	—	,,	Rendering (1—2) floated smooth on concrete in mat sinkings			
	14	—	,,	Ditto to sills in narrow widths, finished plain face, including rounded edge			
				EXTERNALLY			
2	—	—	,,	Plain face (1—3) on brickwork			
	446	—	,,	Ditto trowelled smooth in narrow widths to jambs and surrounds of door openings, etc.			
7	—	—	,,	Ditto in panels in dormer fronts on and including expanded metal, lathing nailed to fir studding			
	305	—	Run.	Labour, slightly rounded arris			
	197	—	,,	Ditto and narrow return			
	99	—	,,	Ditto, ditto and 1½″ return			
	112	—	,,	Margin 1½″ wide, with narrow return and arris			
	127	—	,,	Molded to detail architrave (1—3), 10″ girth, including dubbing			
				No. 14, mitred angle			
				No. 14, 8″ × 3″ square plinth block 3″ high, including ditto			
				Continued			

PORTLAND CEMENT (EXTERNALLY) (*contd.*)

Continued

Yards.	Feet.				£	s.	d.
	34	—	Run.	Fully molded to detail, head to doorway (1—3), 6″ extreme projection and 11″ high, including brick oversailing from face of wall and dubbing			
				No. 14, molded, mitred and returned end ..			
	24	—	— Sup.	Selected quarry tiles bedded in cement mortar with $\frac{1}{8}$″ joints and grouted in cement			
	101	—	,,	4″ ditto bedded and grouted in cement in narrow widths to vertical surrounds to interior stoves. (*Provisional*) ..			
	17	—	— ,,	Second quality white glazed wall tiling bedded in cement mortar as skirtings over sinks and lavatory basins, including all cutting			

Make good all cracks and blisters and leave the Plasterer's work perfect at completion

PLASTERER. CARRIED TO SUMMARY | | | | £

GLAZIER

All glass to be well front-puttied and back-puttied. All putty to be the best oil putty suitable for glazing in metal casements

Feet.						
1747	—	Sup.	15 oz. sheet glass and glazing in steel casements in squares not exceeding 2′ super.			
135	—	,,	Ditto in ditto, not exceeding 6′ super.			
35	—	,,	Arctic obscured glass and glazing in steel casements, in squares not exceeding 2′ super.			
3	—	,,	Ditto in wood sash			
23	—	,,	Ditto in door panels (beads elsewhere measured)			
93	—	,,	Ditto in ditto, bedded in washleather, ditto			

GLAZIER. CARRIED TO SUMMARY | | | | £

PAINTER

All paint, except finishing coat, to be of best genuine English white lead and best quality linseed oil and pigments well ground and mixed with driers as required ..

The finishing coat, unless otherwise described, is to be rubber paint obtained from Messrs Mander Bros., Wolverhampton

All paint work is to be well rubbed down between each coat and all tints are to be approved by the Architect

The Solignum staining and polish on internal woodwork to be obtained from Messrs. Major & Co., of colours to be approved by the Architect

The edges of all stained panels to be stained before framing up

The distemper to be approved proprietary washable distemper

The distempering to walls and second coat of whitening to ceilings to be postponed until receipt of the Architect's instructions to proceed with same

The petrifying liquid coatings are to be supplied by Messrs. Blundell Spence & Co. ..

Continued | | | | £

Yards.	Feet.			£	s.	d.
			Continued			
1510	—	—	Sup. Twice whiten ceilings and soffites			
3014	—	—	,, Twice distemper plastered walls with distemper as described			
849	—	—	,, Ditto brick walls			
17	—	—	,, Ditto between shelves, etc., in dressers			
62	—	—	,, Ditto on Portland cement work externally			
18	—	—	,, Ditto on molded ditto			
			Clean and black.			
		No. 28.	Stove			
		,, 6.	Check plate			
		,, 6.	Soot door			
		,, 12.	Portable boiler and flue pipe and well grease bright parts ..			
		,, 2.	Gas ditto and ditto, ditto			
			Protect, clean and well grease bright parts.			
		,, 18.	Gas stove			
		,, 14.	Gas cooking stove			
			Allow for tarring ends of timbers in brickwork before building in or coating with other approved preservative			
		No. 24.	Paint two coats dull black after fixing, on pairs cross garnett hinges			
			Clean and paint one coat approved metallic paint.			
560	—	Run.	Galvanized barrel, hot water pipes. (*Provisional*)			
		No. 8.	Hot water tank and cantilever brackets			
			Clean and paint one coat oil colour and one coat rubber paint after fixing on ironwork.			
75	—	Run.	Gas barrel. (*Provisional*)			
		No. 10.	Fixed casement, size 1′ 8″ × 2′ 0⅞″, in four squares, *both sides*			
		,, 6.	Ditto, 1′ 8″ × 3′ 0½″, in six squares, *ditto*			
		,, 6.	One light casement and frame, size 1′ 8″ × 2′ 0⅞″, in four squares, to open, including edges and fittings, *ditto* ..			
		,, 32.	Ditto, 1′ 8″ × 3′ 0½″, in six squares, ditto, *ditto*			
		,, 12.	Ditto, 1′ 8″ × 4′, in eight squares, ditto, *ditto*			
		,, 2.	Two light ditto, size 3′ 3¼″ × 2′ 0⅞″, in eight squares, one light to open, *ditto*			
		,, 57.	Ditto, size 3′ 3¼″ × 3′ 0½″, in twelve squares, ditto, *ditto* ..			
		,, 16.	Ditto, size 3′ 3¼″ × 4′, in sixteen squares, ditto, *ditto* ..			
		,, 32.	Three light ditto, size 4′ 10½″ × 3′ 0½″, in eighteen squares, two lights to open, ditto, *ditto*			
		,, 12.	Three light casement and frame, size 4′ 10½″ × 4′, in twenty-four squares, two lights to open, including edges and fittings, *both sides*			
		,, 2.	Five light ditto, size 8′ 1¾″ × 3′ 0½″, in thirty squares, three lights to open, ditto			
			Continued	£		

Yards.	Feet.			£	s.	d.
			Continued			
			Clean and paint one coat oil colour and one coat rubber paint after fixing on ironwork (contd.).			
		No. 6.	Fixed fanlight, size 3′ 10½″ × 10½″, in six squares, ditto ..			
		,, 12.	Pair standard French windows and frame, size 3′ 9″ × 6′ 6″ and fittings, ditto			
			Paint one coat oil colour before fixing and one coat oil colour and one coat rubber paint after fixing on ironwork.			
116	—	Run.	2″ waste pipe			
742	—	,,	Eaves gutter inside and out, including brackets			
418	—	,,	Rain water pipe			
		No. 54.	Stop end to gutter			
		,, 17.	Rain water head, inside and out			
		,, 2.	Pair cantilever brackets for gas boiler			
		,, 14.	Pair iron sink brackets			
		,, 15.	Bracket to lavatory basin			
		,, 16.	Flushing cistern and brackets			
		,, 14.	Bath, externally..			
78	—	Run.	*One coat patent knotting and two coats paint, as last described,* on soil pipe			
			One coat "flat drying transparent petrifying liquid," one coat "petrifying liquid undercoating" and one coat "petrifying liquid enamel."			
118	—	— Sup.	Plaster dado			
250	—	Run.	Cutting in edge			
2180	—	,,	Priming coat on small molded picture rail			
		No. 64.	Ditto on back of door frame			
		,, 38.	Ditto and one coat oil colour on bottom of door			
			Knot, prime, stop and paint two coats oil colour and one coat rubber paint on woodwork.			
154	—	— Sup.	General surfaces			
41	—	— Run.	Mantel shelf			
572	—	,,	Fascia 4″ wide			
		No. 12.	Dozen squares, *one side*			
		,, 26.	Casement frame, *ditto*			
		,, 36.	Brackets to mantel shelf			
		,, 28.	Mantel piece			
		,, 16.	Water butt			
		,, 16.	Lid to ditto			
			Knot, stop and one coat Solignum rubbed down with Solignum polish on woodwork.			
1029	—	— Sup.	General surfaces			
124	—	— ,,	Treads, risers and landings of stairs			
			Continued	£		

				£	s.	d.
			Continued			
			Solignum on woodwork (contd.).			
Feet.						
532	—	Sup.	Shelf and brackets. (*Provisional*)			
71	—	Run.	Shelf edge			
93	—	,,	Lattice bar, 5″ girth			
909	—	,,	Baluster			
3454	—	,,	Skirting			
121	—	,,	Hand ail			
354	—	,,	Wall string and apron lining			
108	—	,,	Outer string and capping			
196	—	,,	Newel			
67	—	,,	Half ditto			
	No.	1.	Casement edge			
	,,	19.	Dozen squares, *one side*			
	,,	26.	Casement frame, *ditto*			
	,,	183.	Bottom of door			
	,,	14.	Pair gallows brackets for gas meter			
	,,	16.	Backboard for flushing cistern			
	,,	27.	Small fillet around air brick			
	,,	29.	¾″ deal door, size 9″ × 9″, and frame			
	,,	14.	Cover to 40 gallon cistern			
			Stain and polish.			
92	—	Run.	Capping to handrail			
41	—	,,	*Birch* mopstick handrail			
Clean down all work at completion, clean windows inside and out, scrub pavings and unpolished floors, clean out rain water gutters and heads and leave the premises clean and ready for occupation						
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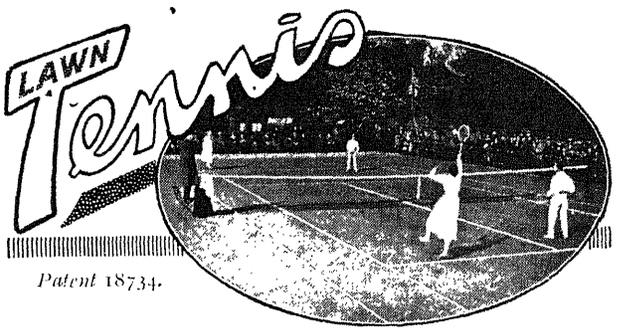
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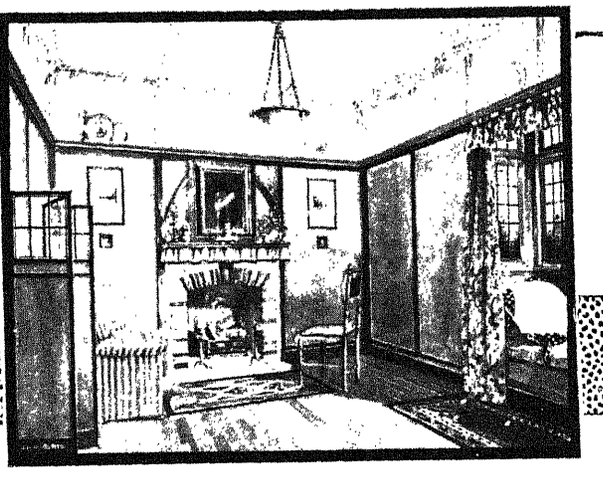
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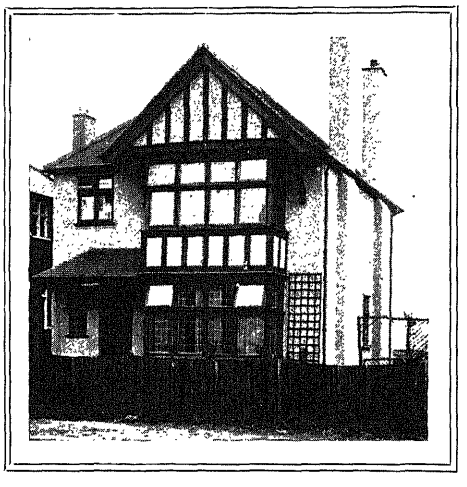
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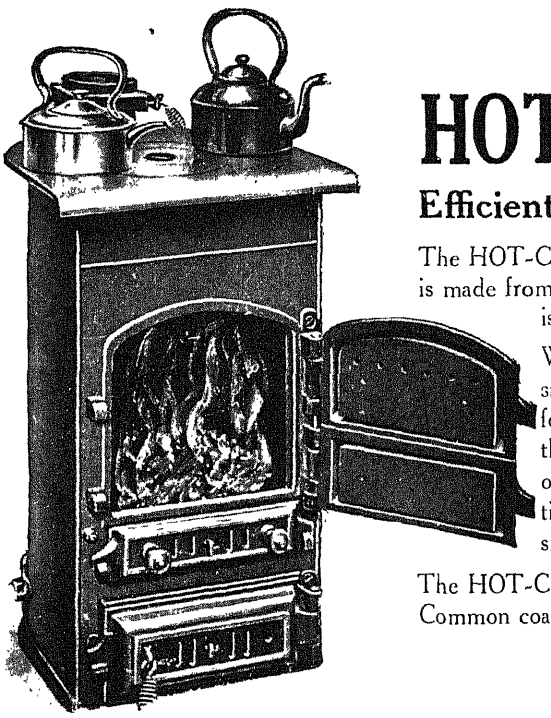
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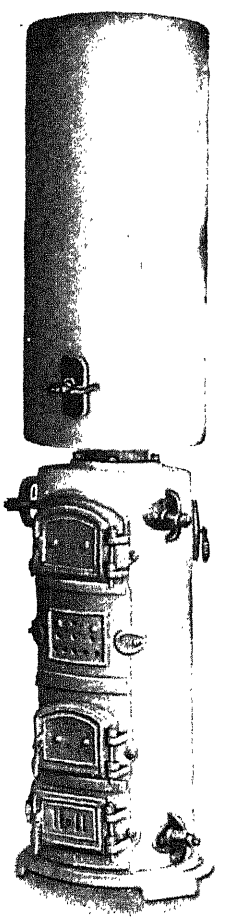
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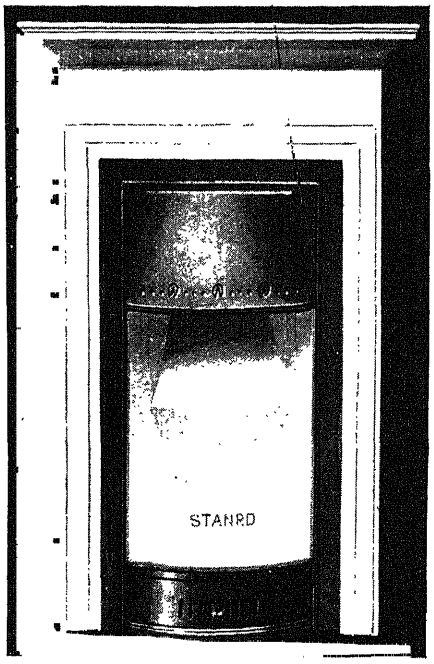
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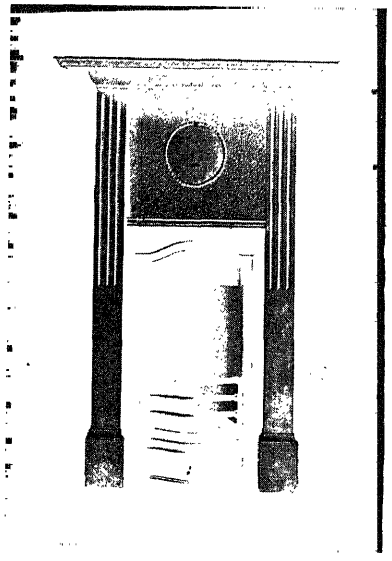
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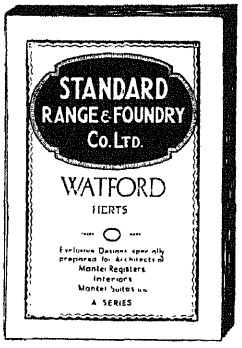
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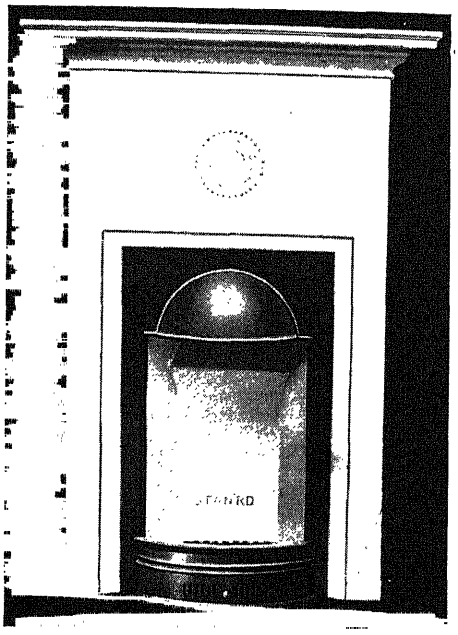
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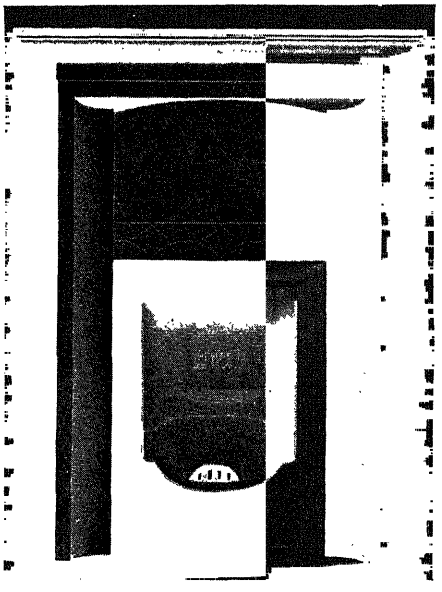
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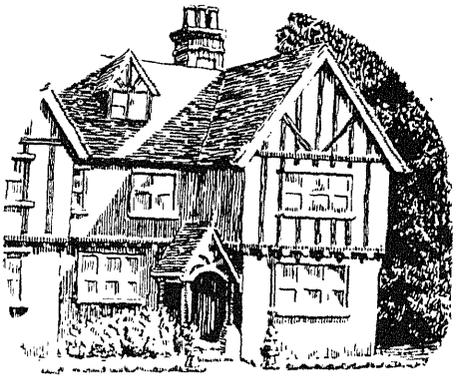
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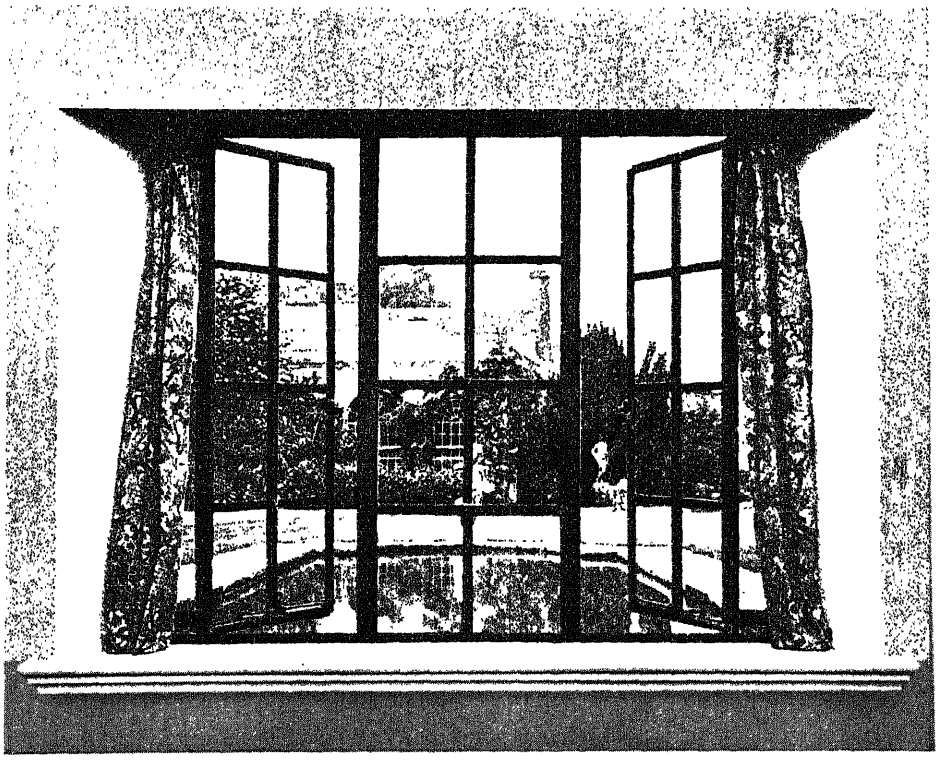
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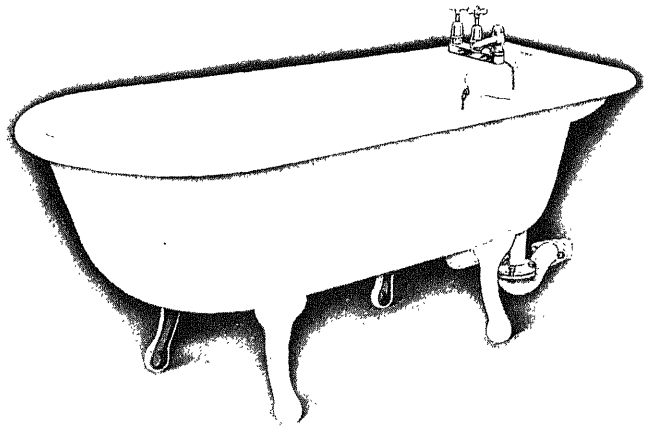
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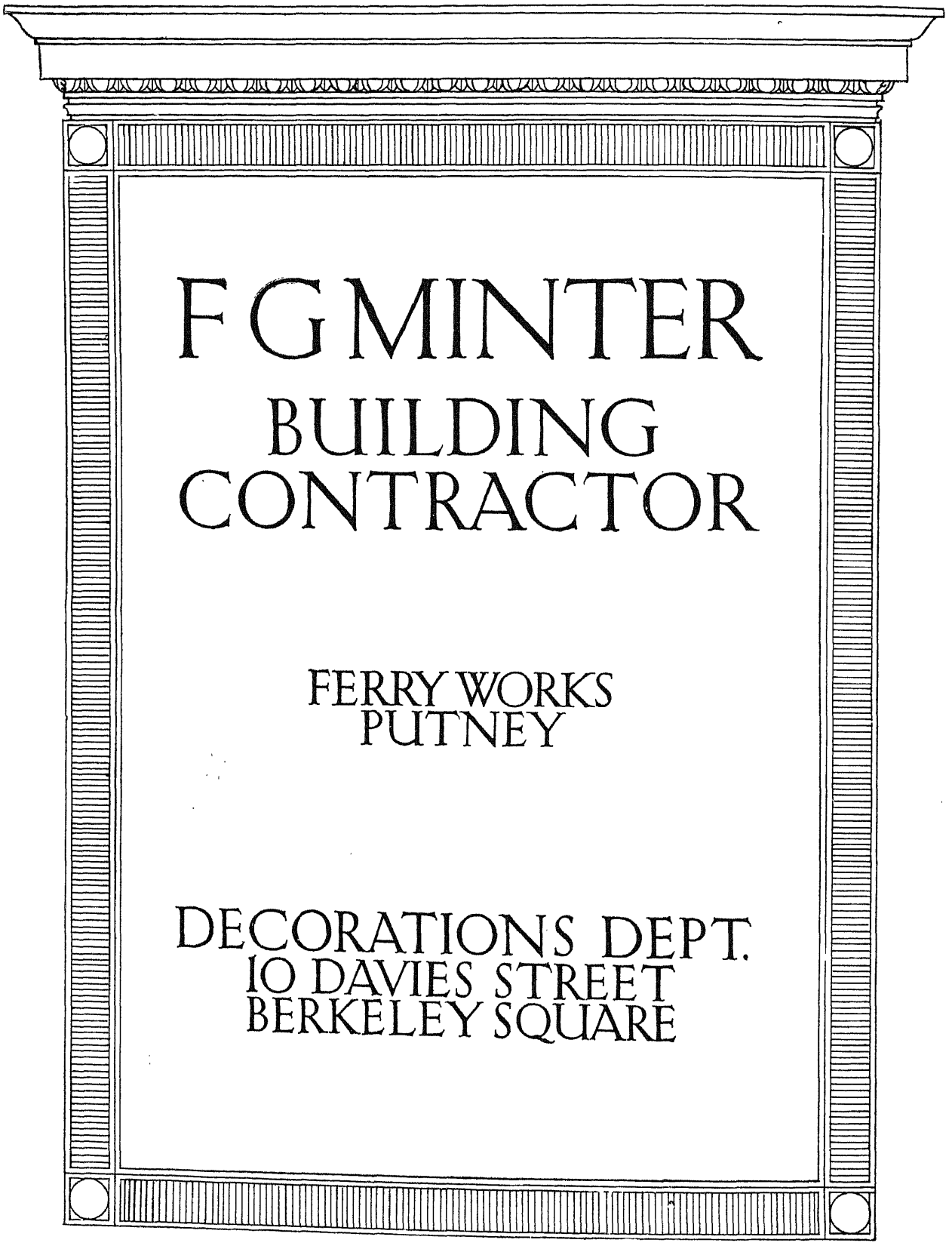
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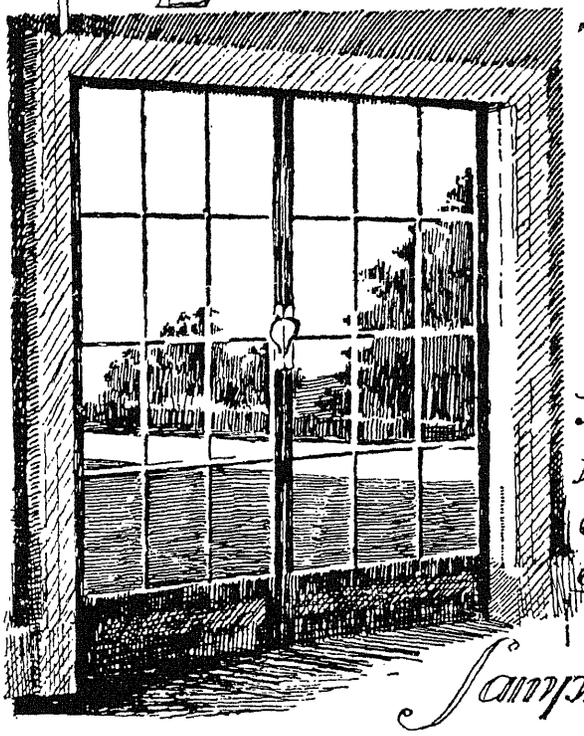
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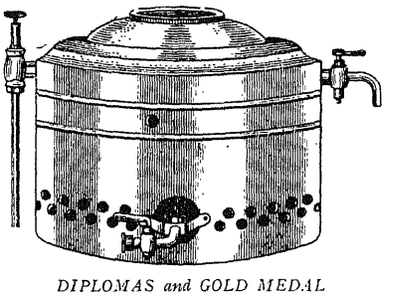
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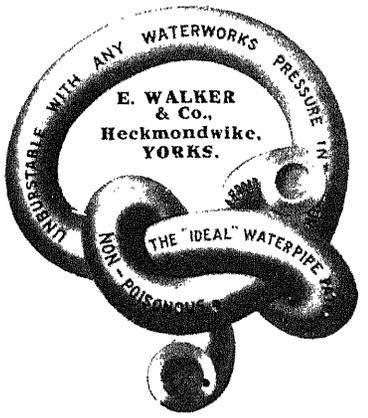
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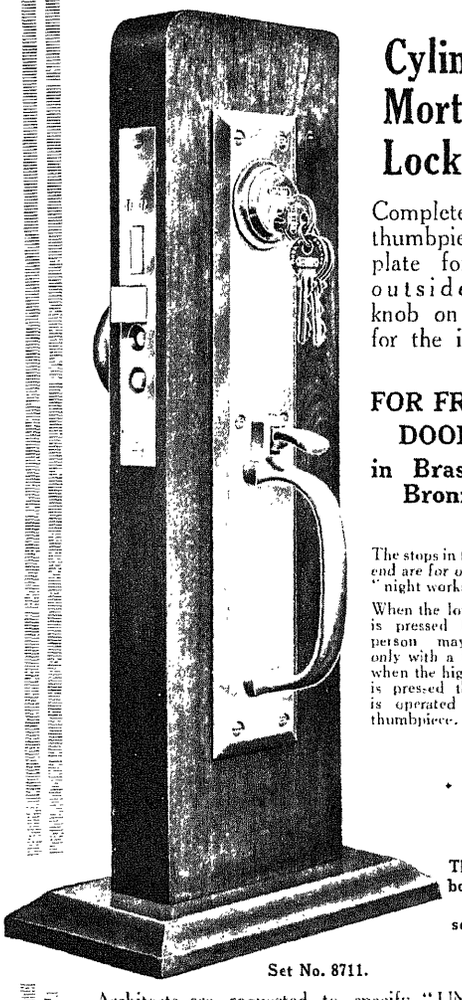
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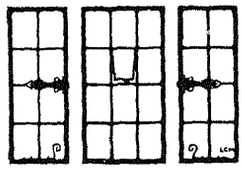
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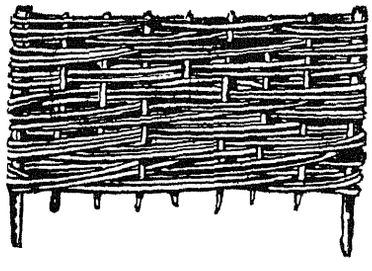
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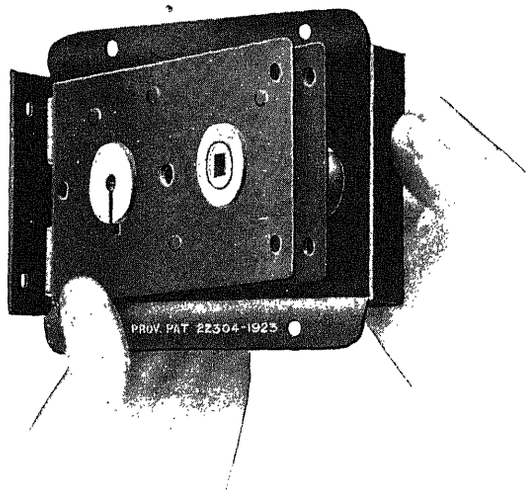
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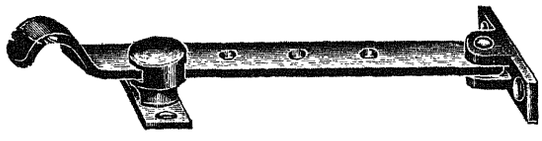
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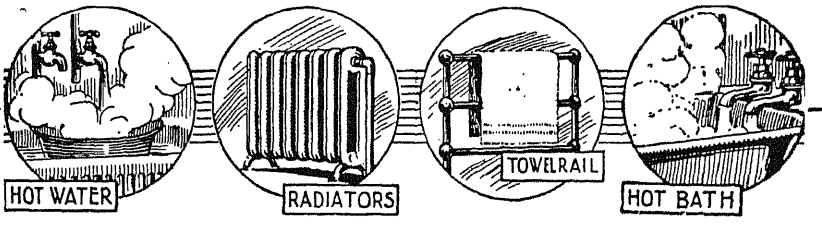
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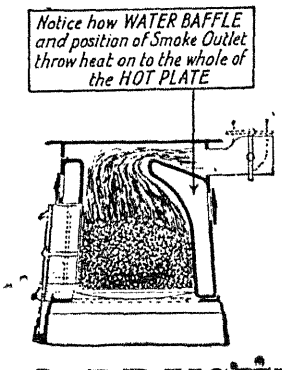
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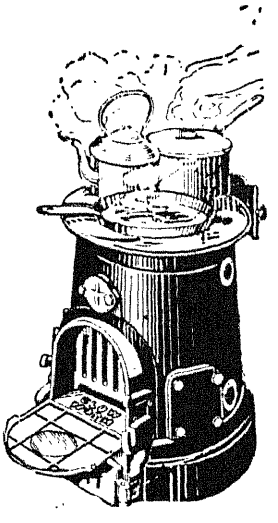
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